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Contents

India

- **ISRO to launch an unprecedented 10 earth imaging satellites**
- **Nuclear ties in focus ahead of Trump visit**
- **DRDO scientists reach Gujarat port to inspect Chinese ship**
- **PM Modi Lauds ISRO for Launching Facility for Children to Watch Rockets at Sriharikota**
- **Donald Trump's visit will push move to set up six nuclear reactors**
- **Indo-US energy ties get renewed push**
- **India has similar capabilities: IAF Vice Chief on nuclear threat from Islamabad**

China

- **Naval drills enhance ability in Pacific Ocean**
- **China urges five nuke powers to safeguard NPT regime**
- **China's Chang'e 4 probe resumes work for 15th lunar day**
- **China opposes US "long-arm jurisdiction": FM spokesperson**
- **Chinese arms companies race to keep up with production schedule delayed by virus outbreak**
- **Chinese military adopts new rules against cybersecurity risks**
- **China launches 4 new technology experiment satellites**
- **China's Chang'e-4 maps image of subsurface on lunar far side**
- **China's rocket-carrying ships complete two transport missions**
- **Chinese envoy highlights importance of strengthening nuclear non-proliferation regime**
- **China's Yuanwang-7 sailing to Atlantic for satellite monitoring mission**

Pakistan

- **Munich Security Conference: Pak-India nuclear war can kill 125m people: report**
- **No space for war between nuclear powers: DG ISPR**

USA

- **Construction milestone announced for US Vogtle**
- **More US funding for fusion research**
- **Sandia National Laboratories hosts its first 'Education With Industry' officer**
- **Oak Ridge National Laboratory to collaborate with TVA on advanced reactors**
- **Oklo wins access to used fuel for Aurora SMR**
- **More companies interested in using humanitarian channel to Iran: U.S. envoy**
- **Exclusive: Westinghouse set to sign pact with NPCIL for nuclear reactors during Trump visit**

- **Southern CEO: Early start-up of Vogtle units possible**
- **Trump's Nevada play leaves nation's nuclear waste in limbo**
- **ATF assemblies complete first fuel cycle at Hatch**
- **U.S. senators unveil bill to support renewable and nuclear power, efficiency**

Europe

- **NATO chief dismisses Macron nuclear strategy call**
- **Macron 'broke the nuclear taboo': Poland rebuffs France's play for European independence from US**
- **France shuts down first reactor of Fessenheim nuclear plant near German border**
- **DOD Fights a Fake Nuclear War in Europe**
- **Britain confirms new nuclear warhead project after US officials spill the beans**
- **Nuclear warfare: How Sweden and Germany plan to curb the threat**
- **Europe, China and Russia urge preservation of Iran nuclear deal**

Russia

- **Always a Step Ahead: Putin Reveals What Russia Will Do in Case Nuclear Weapons Become Obsolete**
- **Russia ready to discuss INF-banned missiles deployment moratorium with France**
- **Russia to produce intermediate-range missile in 6 months, depending on US steps — senator**
- **Russian inspectors visit military facility in Romania under Vienna Document**
- **Russia's top brass to sign deal for two more Borei-A strategic nuclear-powered subs**
- **US embarks on dangerous game simulating nuclear strike on Russia - Russian diplomat**
- **New US doctrines considerably lower nuclear threshold — Russia's top diplomat**
- **Russia Outraged by 'Mini' U.S. Nuclear Drill**
- **Russia, Spain to cooperate in decommissioning**
- **Russia test-launches Tsirkon hypersonic missile from ship for first time**
- **Russia's Northern Fleet continues tests of hypersonic weapons**
- **Companies work on securing medical isotope supplies**

West Asia

Iran

- **Rouhani says Iran will never yield to U.S. pressure for talks**
- **EU's Borrell says remains committed to keep nuclear deal alive**
- **Lavrov discusses Iran nuclear deal with Zarif, Borrell**
- **Iran urges E3 to fulfill JCPOA obligations if they want nuclear standoff solved**
- **'Hit with a truck' - How Iran's missiles inflicted brain injury on U.S. troops**
- **FATF puts Iran on blacklist**
- **Tehran slams Washington's 'insane' sanctions**
- **Zarif discusses nuclear deal with Austrian FM**

- **Iran nuclear deal commission to meet in Vienna**
- **Larijani says EU just keeps talking about preserving nuclear deal**
- **Iran sustains military spending in face of U.S. ‘maximum pressure’: general**
- **Joint Commission of JCPOA to meet on February 26**
- **Iranian security official accuses White House of cover-up about missile attack**
- **JCPOA session has nothing to do with dispute mechanism: Tehran**
- **Iran nuclear deal commission meets to try to save 2015 accord**
- **Parties to Iran nuclear deal meet but make little progress on saving it**
- **Russia, Iran to hold consultations on nuclear cooperation in spring: Ryabkov**

Turkey

- **Third batch of Turkish nuclear energy experts graduate from Russia**
- **Turkish women set to be nuclear energy pioneers**

Israel

- **World powers express ‘serious concerns’ about Iran’s nuclear program**

UAE

- **UAE issues reactor license for first Arab nuclear power plant**

Saudi Arabia

- **Saudi Arabia wants an end to arms race in region**

Misc

- **UAE's Barakah nuclear plant's unit 1 to begin operations**
- **Russia, Zambia will find options to finance construction of nuclear center — official**
- **Nuclear Power Plant and Equipment Market Expected to Witness a Sustainable Growth over 2025**
- **Australian fusion company secures patents for laser-boron technology**
- **US, Canadian, Norwegian military to carry out observation flight over Russia**
- **Companies work on securing medical isotope supplies**

East Asia

Japan

- **TEPCO ordered to cough up after it refused deal on compensation**
- **First A-bomb exhibition to open in Pearl Harbor in July**
- **Onagawa reactor passes screening under new NRA safety standards**
- **Poll: 57% oppose dumping water into ocean from Fukushima plant**

North Korea

- **Kim Jong Un makes first public appearance in 22 days amid virus outbreak**
- **US opens Pandora's box**
- **North Korea's Kim guides military drills, warns 'serious consequences' if virus breaks out: KCNA**

South Korea

- **Renewable energy yet to fill nuclear void**
- **Can Korea continue nuke reactor exports after Barakah?**
- **South Korea seeks 'speedy resumption' of U.S.-North Korea nuclear talks**

Op-Ed

India

- **India Has Nuclear Bombs—But It's Not Defined As a 'Nuclear Power'**
- **Trump's India Visit Should Enhance US-India Space Cooperation**
- **The nuclear deal will continue to be a big facilitator**
- **US, India Should Enhance Nuclear, Space Cooperation To Further Ties**
- **How One Open Hatch Nearly Cost India a \$2.9 Billion Nuclear Submarine**

China

- **China's space achievements draw global attention**

Pakistan

- **Present limitations to India's nuclear triad**
- **5 Ways China Has Turned Pakistan Into a Military Monster**

USA

- **Has US Nuclear Power Reached Its Half-Life?**
- **U.S. senators unveil bill to support renewable and nuclear power, efficiency**

- **Can America Possibly Stop Russia's Country-Destroying Nuclear Torpedo?**
- **We Need to Treat Nuclear War Like the Emergency It Is**
- **America And Russia Have Enormous Nuclear Arsenals, So Why Do Both Nations Feel At Risk?**
- **The Pentagon Just Simulated a 'Limited' Nuclear War With Russia**
- **Nuclear War Could Be Devastating for America—With or Without a Retaliatory Strike**

Europe

- **Nuclear multipolarity: is Macron's latest proposal for Europe realistic?**
- **Europe's nuclear boomerang**
- **Nuclear arms control treaty set for review as divisions over non-proliferation mount**

Russia

- **Ultimate Doomsday Weapon: Missiles Powered By Nuclear Reactors**
- **Meet Russia's Crazy and Deadly Status-6 Nuclear Torpedo**
- **Don't Sleep on Russia's Super-Fast "Avangard" Hypersonic Missile**
- **This Nuclear Bomb Was So Deadly That Russia Was Too Afraid To Test It More Than Once**
- **The 1 Huge Problem With Russia's Borei-Class Nuclear Submarines**
- **Check Out Russia's Newest Attack Submarine**
- **Election Mirage: Why Claims of Russian Meddling Should Be Questioned**

West Asia

Iran

- **A launch failure and a sign of troubles to come**
- **Inaction will only feed malign Iranian behavior**

Turkey

- **Turkey versus Russia and the U.S.: decoding the conundrum**

Israel

- **Israel Has a Secret Nuclear Weapons Program (Well, Maybe Not-So-Secret)**
- **Israel's Air Force And Army Get All The Fame, But Its Navy Has Underwater Super Weapons**

- **Israel's Navy Is A Nuclear Power**
- **Could Israel Become a Nuclear Weapons Superpower?**

East Asia

North Korea

- **Urgent action needed to reduce risk of nuclear war**
- **Arms race that no one can win**

Think Tanks

- **India's quest to normalise its nuclear status**
- **Five Ways to Start a Nuclear War**
- **Russia's shifting views of multilateral nuclear arms control with China**
- **India is building nuclear submarines and ICBMs. That's a \$14 billion mistake**

India

ISRO to launch an unprecedented 10 earth imaging satellites

Madgumathi D.S

The Hindu, February 16, 2020

The country will send up an unusually large number of 10 earth observation (EO) satellites during 2020-21, according to the latest annual report of the Indian Space Research Organisation for 2019-20. In comparison, only three communication satellites — which is another major category in space infrastructure — and two navigation satellites are planned for the coming financial year starting April.

The high number also stands out amidst the immediate two years before and after the plan. For the ongoing fiscal, ISRO had proposed launching six EO satellites, of which two are due to go. For 2021-22, the plan is to add eight EO satellites. ISRO says 19 national EO satellites, 18 communication satellites and eight navigation satellites are in service, driving uses from broadcasting, telephony, Internet services, weather and agriculture-related forecasting, security, disaster-time rescue and relief and location-based services. Three of the communication satellites are dedicated for military communication and networking.

<https://www.thehindu.com/sci-tech/science/isro-to-launch-an-unprecedented-10-earth-imaging-satellites/article30830789.ece>

Nuclear ties in focus ahead of Trump visit

Elizabeth Roche

Livemint, February 18, 2020

The largest US nuclear delegation to visit India in five years held talks with senior Indian officials last week, exploring collaborations in research and development (R&D) and advanced nuclear technology, besides offering nuclear power plants in a range of sizes. The delegation of a dozen people representing the US industry and government, headed by Rita Baranwal, assistant secretary for the office of nuclear energy in the department of energy, was in India on 10-14 February to explore opportunities.

The group was in India under the aegis of the US-India Strategic Partnership Forum. The visit came ahead of US President Donald Trump's 24-25 February official trip to India next week. Besides collaborating with India in R&D and advanced nuclear technology, the US has offered nuclear power plants in three sizes—small modular, micro, and bigger plants of at least one gigawatt capacity. The delegation held meetings with officials in India's external affairs ministry and the department of atomic energy as well as representatives of the nuclear power industry in New Delhi and Mumbai. The US side included representatives of the uranium enrichment supply chain as well as reactor builders.

<https://www.livemint.com/news/india/nuclear-ties-in-focus-ahead-of-trump-visit-11582049040350.html>

DRDO scientists reach Gujarat port to inspect Chinese ship

Livemint, February 18, 2020

Nuclear scientists from the DRDO reached Kandla port in Gujarat on Monday to inspect a Chinese ship carrying a machine used to launch ballistic missiles which has been detained there. The ship enroute Port Qasim in Karachi was trying to pass on an autoclave as an industrial dryer.

A team from the Defence Research and Development Organisation (DRDO) have found that the autoclave was used to make the composite lining for solid-fuel ballistic missiles. Now nuclear scientists have been rushed in to study the autoclave. If their findings corroborate with that of the first team, the autoclave will be seized. "The commercial ship had a Hong Kong flag and was carrying a machine that is used to launch ballistic missiles," sources said.

<https://www.livemint.com/news/india/drdo-scientists-reach-gujarat-port-to-inspect-chinese-ship-11581969386622.html>

PM Modi Lauds ISRO for Launching Facility for Children to Watch Rockets at Sriharikota
ABP News, February 23, 2020

With an aim to boost scientific temper among children, Prime Minister Narendra Modi in his radio program Maan Ki Baat on Sunday talked about the initiative taken by Indian Space Research Organisation (ISRO) which facilitates the viewing of rocket launchings at Sriharikota.

"Children, youth in India are increasingly taking a keen interest in Science and Technology. When I was in Bengaluru during Chandrayan-2, I witnessed immense enthusiasm and fervour on part of children present there. There was no sign of drowsiness from any angle. To give a fillip to this very enthusiasm in children and young people, ISRO launched a facility to sit, watch rocket launching at Sriharikota. The online booking is also possible through a link provided on ISRO's website," he said while addressing the 62nd edition of his monthly radio programme 'Mann Ki Baat'.

<https://news.abplive.com/news/pm-modi-lauds-isro-for-creating-facility-for-children-to-watch-rocket-launching-at-sriharikota-1164178>

Donald Trump's visit will push move to set up six nuclear reactors

Anil Sasi

The Indian Express, February 24, 2020

An announcement on a "project proposal" for the setting up of six nuclear power reactors in collaboration with Westinghouse Electric Company is expected during US President Donald Trump's visit this week. The emergence of a viable proposal would set the stage for a commercial agreement to be initialled with Westinghouse Electric, which would pave the way for commencement of work on the project in coastal Andhra Pradesh.

Officials indicated that "techno-commercial discussion to arrive at a project proposal...have made steady progress" and a fresh pact, which builds on the civil nuclear cooperation agreement signed by India and the US in March 2019, is expected to be inked during the visit. The nuclear power push comes amid the government's plans to triple the country's nuclear capacity by 2024 to lower the contribution of fossil fuels in India's energy mix, alongside a pronounced renewable energy push.

<https://indianexpress.com/article/india/donald-trumps-visit-will-push-move-to-set-up-six-nuclear-reactors-6283295/>

Indo-US energy ties get renewed push

Gireesh Chandra Prasad, February 25, 2020

India and the US have decided to boost trade in crude oil and liquefied natural gas (LNG) and also strengthen technology partnerships in the energy sector, which will support New Delhi's plan for \$60 billion worth of investments in developing infrastructure for a cleaner, gas-based economy. Prime Minister Narendra Modi and US President Donald Trump on Tuesday identified energy as a vital part of the strategic cooperation between the two nations, while oil minister Dharmendra Pradhan said India has become the fourth-largest export destination for US crude and the fifth-largest buyer of LNG from the US. India is looking at the US for energy supplies as part of a strategy to diversify its crude and gas sources to give New Delhi more bargaining power while dealing with traditional suppliers.

"Our strategic energy partnership is growing stronger. This is helping to improve bilateral investments. For oil and gas, the US has become a major source. In the last four years, our total energy trade has been \$20 billion. In renewable or nuclear energy, our cooperation is getting new energy," Modi said on Tuesday. The Prime Minister said that he and Trump have decided to take the relationship to the level of a comprehensive global strategic partnership.

<https://www.livemint.com/news/india/india-counts-us-as-major-energy-supplier-modi-11582632688573.html>

India has similar capabilities: IAF Vice Chief on nuclear threat from Islamabad

Business Standard, February 28, 2020

Pakistan can keep talking about nuclear retaliation and its capability, India also possesses a similar capability, Vice Chief of Indian Air Force, Air Marshal HS Arora said on Friday. "Pakistan can keep talking about nuclear retaliation and its capability. We also possess a similar capability," IAF Vice Chief told ANI while responding to a question on Pakistan often raking up the issue.

While India has a 'No First Use' policy with regards to nuclear weapons, Pakistan has no such policy. India too has indicated of late that the policy is open to review. "As far as their (Pakistan's) terror factories are concerned, they are no longer safe anywhere across the border. We have the will, capability and the political support to go across and strike them at their roots," Arora said.

https://www.business-standard.com/article/news-ani/india-has-similar-capabilities-iaf-vice-chief-on-nuclear-threat-from-islamabad-120022801024_1.html

China

Naval drills enhance ability in Pacific Ocean

Liu Xuanzun

Global Times, February 17, 2020

A warship fleet of the Chinese People's Liberation Army (PLA) Navy recently conducted an air defense exercise in the far seas of the Pacific Ocean, a move experts said on Monday showed the Navy's high capability in the Pacific waters. The far sea joint training fleet under the PLA Southern Theater Command Navy, featuring guided missile destroyer Hohhot, guided missile frigate Xianning, electronic surveillance ship Tianshuxing and replenishment ship Chaganhu, held air defense drills at an undisclosed area in the Pacific Ocean, media reported on Sunday.

Beijing-based military expert Wei Dongxu told the Global Times on Monday that the drills demonstrated the Chinese Navy's high capability of joint fleet air defense in the waters of Pacific

Ocean, and further improved this capability through training. China may face aerial threats from the US from the Pacific Ocean, so the Chinese Navy's drills in these waters could lead to a higher capability of defending against potential hostile attacks, pushing the defense line farther away from the mainland, analysts said. Using a combination of missiles and the close-in weapon system for the first time, the fleet successfully intercepted multiple waves of incoming target drones, reports said.

<https://www.globaltimes.cn/content/1179922.shtml>

China urges five nuke powers to safeguard NPT regime

Chen Lufan

China Mail, February 17, 2020

The ninth formal conference among the five nuclear-weapon states (also the five permanent members (P5) of the United Nations (UN) Security Council) was held in London from February 12 to 13, 2020. It was chaired by Thomas Drew, Director General for Consular and Security at the Foreign and Commonwealth Office of the UK, with Chris Ford, Assistant Secretary of State of the US, Vladimir L. Leontiev, Deputy Director of the Department for Non-Proliferation and Arms Control of the Russian Foreign Ministry, and David Bertolotti, Director of Strategic, Security and Disarmament Affairs of the French Ministry of Foreign Affairs also attending the meeting. Fu Cong, Director-General of the Arms Control Department of the Chinese Foreign Ministry, headed Chinese delegation to the conference.

Fu said that the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is the cornerstone of the international nuclear disarmament and non-proliferation system and also an important part of the post-war international security system. With intensifying competition among major powers, the process of nuclear disarmament between the US and Russia is regressing and the use of emerging technologies for military purposes is accelerating. Global strategic stability is undermined. At the same time, the prevalence of unilateralism in some countries has caused difficulties to solve regional nuclear hotspots. The tendency to politicize in the peaceful use of nuclear energy is prominent, obstructing normal international cooperation. The NPT regime faces severe challenges as a result of the above factors. The P5 regime is a coordination mechanism formed by China, France, Russia, the UK, and the US as NPT legal nuclear weapon states during the review process of the treaty. Since 2009, the five member states have been maintaining regular communication on important issues of strategic security and jointly promoted the NPT review process.

http://eng.chinamil.com.cn/view/2020-02/17/content_9744561.htm

China's Chang'e 4 probe resumes work for 15th lunar day

China Daily, February 18, 2020

The lander and rover of the Chang'e 4 probe have resumed work for the 15th lunar day on the far side of the moon after "sleeping" during the extremely cold night. The lander woke up at 6:57 am Tuesday (Beijing time), and the rover awoke at 5:55 pm Monday. Both are in normal working order, according to the Lunar Exploration and Space Program Center of the China National Space Administration.

The rover, Yutu 2 or Jade Rabbit 2, has traveled 367.25 meters on the far side of the moon, with a plan to drive northwest and then southwest to continue its scientific exploration. The Chang'e 4 probe, launched on Dec 8, 2018, made the first-ever soft landing on the Von Karman Crater in the South Pole-Aitken Basin on the far side of the moon on Jan 3, 2019.

<https://global.chinadaily.com.cn/a/202002/18/WS5e4b8edba310128217278706.html>

China opposes US "long-arm jurisdiction": FM spokesperson

Global Times, February 18, 2020

China firmly opposes unilateral sanctions and "long-arm jurisdiction" imposed by the United States citing its domestic law, a Chinese Foreign Ministry spokesperson said Monday. According to the Federal Register, the United States has decided to impose sanctions on six Chinese enterprises, three Russian enterprises, one Iraqi enterprise and one Turkish enterprise in accordance with its Iran, North Korea, and Syria Nonproliferation Act.

"China has lodged stern representations with the US side," spokesperson Geng Shuang said during an online press briefing, adding China urges the United States to correct its mistake at once and withdraw the sanctions. Geng said China is committed to strengthening the international non-proliferation system, strictly fulfilling the international obligation on non-proliferation and maintaining communication and cooperation with other countries on the basis of mutual respect. By contrast, in non-proliferation and other areas, the United States has been obsessed with unilateralism and wantonly imposing unilateral sanctions and "long-arm jurisdiction" on others, which has been universally rejected by the international community as it severely undermines other countries' interests and international efforts in non-proliferation and safeguarding peace and stability, Geng said. "The Iranian nuclear issue is a case in point," he said. "We urge the United States to squarely face the international community's concerns and earnestly respect other countries' legitimate rights and interests."

<http://www.globaltimes.cn/content/1179957.shtml>

Chinese arms companies race to keep up with production schedule delayed by virus outbreak

Global Times, February 18, 2020

Chinese arms enterprises have been racing to keep up with their production schedule after resuming work following an extended Spring Festival holiday due to the novel coronavirus (COVID-19) outbreak with a key amphibious assault ship maker scrambling to outfit an "important" ship and aviation companies running test flights for newly built warplanes.

Shaanxi Aircraft Industry (Group) Corporation Ltd under the state-owned Aviation Industry Corporation of China (AVIC) was the first to send a new aircraft into the sky after resuming work on February 10, a little more than a week later than the original plan, cannews.com, an aviation news website run by AVIC, reported.

<https://www.globaltimes.cn/content/1179994.shtml>

Chinese military adopts new rules against cybersecurity risks

Liu Xuanzun Global Times, February 19, 2020

The Chinese military will adopt a new regulation on confidentiality in a move to better manage cybersecurity risks amid the increasingly intense strategic games between China and the US, experts said on Wednesday. President Xi Jinping, who is also chairman of the Central Military Commission, recently signed an order to publish the new military confidentiality regulation, which will come into force on March 1, the People's Liberation Army (PLA) Daily reported on Wednesday. The

regulation will provide a strong basis for military development, reform and preparations for military struggle, the report said.

<https://www.globaltimes.cn/content/1180128.shtml>

China launches 4 new technology experiment satellites

Xinhua, February 20, 2020

China sent four new technology experiment satellites into planned orbit from the Xichang Satellite Launch Center in southwest China's Sichuan Province Thursday. The satellites, launched by a Long March-2D carrier rocket, will be mainly used for the new Earth-observation technology experiment. The carrier rocket and two of the satellites were developed by the Shanghai Academy of Spaceflight Technology, the other two satellites were respectively developed by the Harbin Institute of Technology and the DFH Satellite Co. Ltd. Thursday's launch was the 326th mission of the Long March rocket series.

http://www.xinhuanet.com/english/2020-02/20/c_138799871.htm

China's Chang'e-4 maps image of subsurface on lunar far side

Global times, February 27, 2020

China's spacecraft Chang'e-4 on the far side of the moon has revealed what lurks below the lunar surface and how it might evolve, according to a study published Wednesday in the journal Science Advances. The Chang'e-4 probe, launched on Dec. 8, 2018, made the first-ever soft landing on the Von Karman Crater in the South Pole-Aitken Basin on Jan. 3, 2019. The spacecraft then deployed its Yutu-2 rover, which uses the Lunar Penetrating Radar (LPR) to investigate the underground it roams. The LPR sent radio signals deep into the surface of the moon, reaching a depth of 40 meters by the high frequency channel of 500 MHz, more than three times the depth previously reached by Chang'e-3.

The Chang'e-4 team found that the subsurface at the landing site is much more transparent to radio waves. This data allowed the researchers to develop an approximate image of the subsurface stratigraphy. "We found that the signal penetration at the Chang'e-4 site is much greater than that measured by the previous spacecraft, Chang'e-3, at its near-side landing site," said the paper's author Li Chunlai, a research professor at the National Astronomical Observatories of the Chinese Academy of Sciences.

<http://www.globaltimes.cn/content/1180922.shtml>

China's rocket-carrying ships complete two transport missions

China Military Online, February, 27, 2020

China's Yuanwang rocket-carrying ships docked at their home port at the China Satellite Maritime Tracking and Controlling Department on February 26, after completing the maritime rocket transport tasks of Long March-7A and Long March-5B Y1 carrier rockets. Yuanwang-21 set sail first on December 30, 2019 and completed the transport mission of Long March-7A rocket. Then it joined with Yuanwang-22 in transporting Long March-5B Y1 rocket.

Li Jin, captain of ship Yuanwang-21, said: "In this voyage, the Yuanwang-21 set a record with a 59-day voyage covering more than 8,000 nautical miles in a single mission." During the mission, the

fleet also strictly stuck to COVID-19 prevention and control. "Everyone's body temperature was monitored regularly. The range of personnel activities was limited, with crew members taking meals separately in batches. And the whole ship was also disinfected on daily basis," Li Jin introduced. The Yuanwang rocket-carrying ships will be subsequently refurbished and maintained at the home port, and carry out various targeted technical drills to prepare for the high-frequency rocket transport tasks this year.

http://eng.chinamil.com.cn/view/2020-02/27/content_9754058.htm

Chinese envoy highlights importance of strengthening nuclear non-proliferation regime Xinhua, February 27, 2020

A Chinese envoy on Wednesday called for strengthening the nuclear non-proliferation regime and eliminating the risk of nuclear weapons proliferation. Speaking at a UN meeting, China's deputy permanent representative to the UN, Wu Haitao, told the Security Council that the proliferation of nuclear weapons has complicated root causes and needs to be addressed in a comprehensive way. He added that the authority and universality of the international nuclear non-proliferation regime should be strengthened and double standards and selectivity should be abandoned.

The Chinese envoy also called for full development of the potential to promote the peaceful use of nuclear energy and related international cooperation. The peaceful use of nuclear energy is an inalienable right granted by the Nuclear Non-Proliferation Treaty (NPT) to states parties, he said, adding that preventing the proliferation of nuclear weapons should not undermine the legitimate rights of all countries, especially developing countries. Noting that China is committed to the path of peaceful development and pursues an independent foreign policy of peace and a national defense policy that is defensive in nature, Wu said China will continue to actively practice multilateralism, firmly uphold the international arms control and non-proliferation regime and contribute to the lofty cause of peace and security for mankind.

<http://www.globaltimes.cn/content/1180919.shtml>

China's Yuanwang-7 sailing to Atlantic for satellite monitoring mission Xinhua, February 28, 2020

China's new-generation space tracking ship Yuanwang-7 is sailing to the Atlantic Ocean for a satellite maritime monitoring mission. The ship departed from a port of the China Satellite Maritime Tracking and Controlling Department in Jiangsu Province Thursday. It is the first time for Yuanwang-7 to carry out a mission in the Atlantic. Only one ship of China's Yuanwang fleet, Yuanwang-3, so far has conducted missions in the ocean. "This time the designated maritime area is remote and the route is new. We estimate that the vessel will sail in waves higher than 4 meters for over 10 days, a tougher journey than before," said Ni Liuguo, captain of the ship. China will have more than 40 space launches this year, and the Yuanwang fleet is expected to carry out intensive maritime monitoring missions.

http://www.xinhuanet.com/english/2020-02/28/c_138827363.htm

Pakistan

Munich Security Conference: Pak-India nuclear war can kill 125m people: report The News International, February 19, 2020

Since 1947, relations between India and Pakistan have been through many high and low periods, but recent clashes could exacerbate matters and lead to a full-blown military conflict between the two nuclear-powered nations, as per the Munich Security Report 2020, foreign media reported on Tuesday. The report cited that in the event of a nuclear war between India and Pakistan, a death toll as high as 50-125 million people could be inevitable by 2025.

As per the report, tensions between the main powers in the region are still active, namely India, Pakistan, and increasingly also China. “With India having completed its nuclear triad and Pakistan intending to do so, the risk of a regional nuclear arms race adds another delicate component to a worsening security situation,” the report stated. The report also takes into consideration the security situation in Afghanistan, which remains volatile to this day as well as the Pulwama attack which took place on February 14, 2019. The resulting escalation of tensions between India and Pakistan led to military exchanges between the two countries.

<https://www.thenews.com.pk/print/616357-munich-security-conference-pak-india-nuclear-war-can-kill-125m-people-report>

No space for war between nuclear powers: DG ISPR

Tahir Niaz

The Nation, February 28, 2020

Pakistan once again made it clear on Thursday that the armed forces will respond to any misadventure by India in the future as well. Director General Inter-Services Public Relations (ISPR) directorate, Major General Babar Iftikhar in his maiden press conference on the first anniversary of ‘Operation Swift Retort’ which resulted in the downing of two Indian planes, that had violated Pakistani airspace on February 27 last year, warned if Pakistan’s sovereignty is challenged, the country will respond with full force.

He said that Pakistan was taking the recent threatening statements by the Indian leadership very seriously. “We are aware of all covert and overt operations of our enemies and are prepared for all scenarios. Pakistan’s civil and military leadership is very much aware of the game being played by India,” he added. He, however, said there is no space for a war between two nuclear powers because it will have uncontrollable consequences. “If there is a war in the region, there will be far reaching consequences,” he warned. He said the region cannot afford any war. Therefore, he said, Pakistan has always adopted the path of peace. Nonetheless, the armed forces of Pakistan are ever ready to respond to any aggression.

<https://nation.com.pk/28-Feb-2020/no-space-for-war-between-nuclear-powers-dg-ispr>

USA

Construction milestone announced for US Vogtle

Nuclear Engineering, February 17, 2020

Workers at Georgia Power's Vogtle nuclear plant in the USA on 11 February completed the final concrete placement inside the Vogtle 3 containment vessel. This milestone allows installation of machinery that will be used to load fuel into the unit. Georgia Power is building two Westinghouse AP1000 reactors as the Vogtle expansion project in Georgia. Vogtle unit 3 is expected to enter commercial operation in November 2021, with Vogtle 4 expected to follow 12 months later. The fuel, comprising 157 fuel assemblies each measuring 14 feet, will be loaded into the reactor vessel

prior to start-up. More than 22,000 tons of concrete has been placed inside the Vogtle 3 containment vessel since construction began. At Vogtle 4, the final concrete placement of the operating deck has been completed, marking the last substantial concrete placement ahead of the containment vessel top lift in the coming months. The Vogtle 3&4 project workforce has reached an all-time high with approximately 9000 workers now on site.

Major systems testing began in November at Vogtle 3 in preparation for cold hydro testing and hot functional testing later this year. The project is already years behind schedule and billions of dollars over budget. Public Service Commission (PSC) staff wrote in a report released in July 2019 that it would be a challenge for Georgia Power to make the state's approved deadlines. However, regulators concluded that if the company manages to complete the project on its latest schedule there is "a chance" it will stay within its latest budget estimates, in part because Georgia Power's latest estimate includes \$1.4 billion in contingency funds. Construction of Vogtle 3 began in March 2013 and Vogtle 4 in November 2014. Southern Nuclear and Georgia Power, both subsidiaries of Southern Company, took over management of the project following Westinghouse's Chapter 11 bankruptcy in March 2017. Southern Company owns 45.7% of the Vogtle project through Georgia Power. The other co-owners are Oglethorpe Power with 30%, MEAG Power with 22.7% and Dalton Utilities with the remaining 1.6%.

<https://www.neimagazine.com/news/newsconstruction-milestone-announced-for-us-vogtle-7782379>

More US funding for fusion research

Nuclear Engineering International, February 17, 2020

The US Department of Energy (DOE) on 13 February announced up to \$50 million in cross-cutting departmental funding for programmes to support fusion energy research and development. The Office of Science announced \$20 million to research fusion energy at both US and international facilities, focusing on the use of spherical tokamaks. The initiative will support research by US scientists at existing fusion facilities in the USA, UK, and other countries with current bilateral agreements with the USA. It will also provide support for research at the National Spherical Tokamak Experiment Upgrade (NSTX-U) at DOE's Princeton Plasma Physics Laboratory in New Jersey when it resumes operations. NSTX-U is currently completing repairs and is expected to resume operations in May 2021. The research will also support the International Thermonuclear Experimental Reactor (Iter) under construction in France. "In addition to having potential performance advantages, spherical tokamaks can serve as excellent research instruments to probe key physics problems prior to burning plasma operation in ITER," said Under Secretary for Science Paul Dabbar. "This initiative will help keep American scientists in a leadership role as we move toward the goal of cost-effective fusion energy for the world." DOE's Advanced Research Projects Agency-Energy (ARPA-E) and the Office of Science's Fusion Energy Sciences programme (FES), in a joint funding effort, will award up to \$30 million in funding to research and develop a range of enabling technologies required for commercially attractive fusion energy.

The programme, Galvanizing Advances in Market-aligned fusion for an Overabundance of Watts (GAMOW), will prioritise R&D particularly in: all the required technologies and subsystems between the fusion plasma and the balance of plant; cost-effective, high-efficiency, high-duty-cycle driver technologies; and important cross-cutting areas such as novel fusion materials and advanced and additive manufacturing. "We're excited to partner with the Fusion Energy Sciences program in pursuit of our mission to support transformational energy projects. Together, we are equipping America's energy researchers with the funding, technical assistance, and market readiness to create the energy systems of the future," said ARPA-E Director Lane Genatowski. For more than sixty

years, fusion R&D has primarily focused on attaining the required fuel density, temperature, and energy confinement time necessary for a viable fusion energy system. Over time, investment into the fundamental enabling technologies and advanced materials that are needed to support fusion energy has grown. Still, there remains a significant need for progress in this space before a fusion energy system can become commercially attractive, according to DOE. GAMOW seeks to address this need by funding projects that support innovative R&D for fusion energy subsystems and cross-cutting research.

<https://www.neimagazine.com/news/newsmore-us-funding-for-fusion-research-7775081>

Sandia National Laboratories hosts its first 'Education With Industry' officer

National Nuclear Security Administration, February 18, 2020

For the first time, NNSA's Sandia National Laboratories is hosting a student in the prestigious U.S. Air Force "Education With Industry," a highly selective program that pairs military personnel with industry leaders in their career field. Sandia is hosting Capt. Antonio Gallop, also the Air Force's first 21M Munitions and Missile Maintenance officer ever selected for the program. Antonio has been in the Air Force for just more than eight years, joining after graduating and commissioning in 2011 from the University of Florida with a history degree. During Antonio's military career he has had assignments on multiple continents including Asia and Europe. His last assignment before coming to Sandia was as a major command-level evaluator on the U.S. Air Forces in Europe Inspector General team, stationed in Germany.

"Understanding the acquisition and the lifecycle management process of the deterrence mission of the nuclear weapons enterprise is phenomenal," Antonio said. "It's invaluable to understand how the process works and how I can bring that knowledge back to the Air Force." NNSA's nuclear security enterprise is comprised of a nationwide network of government-owned, contractor-operated national security laboratories and nuclear weapons production facilities. These facilities provide the necessary research, development, testing, and production capabilities needed to carry out stockpile stewardship.

<https://www.energy.gov/nnsa/articles/sandia-national-laboratories-hosts-its-first-education-industry-officer>

Oak Ridge National Laboratory to collaborate with TVA on advanced reactors

World Nuclear News, February 20, 2020

The partnership will take advantage of ORNL's scientific expertise and its unique facilities, including the High Flux Isotope Reactor, Oak Ridge Leadership Computing Facility and Manufacturing Demonstration Facility. TVA President and CEO Jeff Lyash said the partnership supports TVA's mission for innovation and will allow it to "better explore potential future nuclear technologies that benefit the 10 million people across seven states and help lead nuclear energy's future in the United States".

Under their latest Memorandum of Understanding (MoU), ORNL and TVA will evaluate: development of advanced construction techniques; integrated development activities for site infrastructure support; development of various economic deployment catalysts; innovation of advanced manufacturing technologies; and, the use of technology deployment to meet regulatory and safety requirements more efficiently. Last December, the US Nuclear Regulatory Commission authorised the issuance of an early site permit to TVA for the potential construction of small modular reactors (SMRs) at its Clinch River site. TVA has yet to decide whether to actually construct such

reactors at the site and, if so, what technology it would use. Should TVA decide to build SMRs at Clinch River, it would need to apply separately for an NRC licence to build and operate them.

<https://world-nuclear-news.org/Articles/ORNL-TVA-to-collaborate-on-advanced-reactors>

Oklo wins access to used fuel for Aurora SMR

World Nuclear News, February 20, 2020

The California-based company applied for access to the material through a competitive process INL launched last year to accelerate deployment of commercially viable micro-reactors by providing developers with access to material needed to produce fuel for them. Last month, Oklo announced it had received a site use permit from the US Department of Energy to build and demonstrate the Aurora technology at INL. John Wagner, associate laboratory director for INL's nuclear science and technology directorate, said INL is "committed to working with private companies and others to develop the technologies that will provide clean energy to the world". Ashley Finan, director of the National Reactor Innovation Center (NRIC), added that building and operating advanced reactors is "essential to restoring US leadership in nuclear energy".

Led by INL, NRIC was established in August 2019 to provide access to resources to accelerate the demonstration of advanced nuclear technology concepts. Oklo says the 1.5-megawatt Aurora reactor will avoid the emission of one million tonnes of carbon dioxide during its operation that would otherwise have been produced by diesel generator alternatives.

<https://world-nuclear-news.org/Articles/Oklo-wins-access-to-used-fuel-for-Aurora-small-rea>

More companies interested in using humanitarian channel to Iran: U.S. envoy

Reuters, February 20, 2020

U.S. Special Representative for Iran Brian Hook said on Thursday the United States was in talks with at least two more companies that would like to send food and medicine to Iran through the Swiss humanitarian channel. Hook told reporters there was a lot of interest in the Swiss network, intended to supply goods to struggling sectors of Iran's population without tripping over U.S. sanctions. He offered few details, and did not identify firms either in talks with U.S. officials or those that may already have engaged in sending shipments to Iran through the Swiss Humanitarian Trade Arrangement. The SHTA seeks to ensure that Swiss-based exporters and trading companies in the food, pharmaceutical and medical sectors have a secure payment channel with a Swiss bank, through which payments for their exports to Iran are guaranteed.

<https://www.reuters.com/article/us-iran-nuclear-usa-humanitarian/more-companies-interested-in-using-humanitarian-channel-to-iran-u-s-envoy-idUSKBN20E2BZ>

Exclusive: Westinghouse set to sign pact with NPCIL for nuclear reactors during Trump visit

Sanjeev Miglani and Neha Dasgupta

Reuters, February 21, 2020

U.S. energy firm Westinghouse is expected to sign a new agreement with state-run Nuclear Power Corporation of India for the supply of six nuclear reactors during U.S. President Donald Trump's visit next week, officials said, aiming to kickstart a long-running project. The agreement will lay out timelines and the lead local constructor for the reactors to be built at Kovvada in southern India and also address lingering concerns over India's nuclear liability law.

Last week representatives from U.S. energy and commerce departments, Westinghouse, the U.S.-India Strategic Partnership Forum and The Nuclear Energy Institute were in India for talks with government officials as part of a commercial mission to promote nuclear exports to India. “We are encouraging moving forward with Westinghouse and NPCIL to sign a MoU. It certainly is a private industry to private industry, a business to business decision,” Dr. Rita Baranwal assistant secretary for the Office of Nuclear Energy in the U.S. Department of Energy, told Reuters in a phone interview.

<https://in.reuters.com/article/india-usa-trump-westinghouse/exclusive-westinghouse-set-to-sign-pact-with-npcil-for-nuclear-reactors-during-trump-visit-idINKBN20F0UT>

Southern CEO: Early start-up of Vogtle units possible

World Nuclear News, February 21, 2020

Construction of unit 3 began in March 2013 and unit 4 in November the same year. Southern Nuclear and Georgia Power, both subsidiaries of Southern Company, took over management of the construction project in 2017 following Westinghouse's Chapter 11 bankruptcy. Vogtle 3 is scheduled to enter service by November 2021 and unit 4 by November 2022. Major systems testing began in November at Vogtle 3 in preparation for cold hydro testing and hot functional testing later this year. The unit's licensee, Southern Nuclear Operating Company, has informed the US Nuclear Regulatory Commission (NRC) it plans to begin initial fuel loading on 23 November.

"In April 2019, we laid out an aggressive site work plan as a tool to achieve margin to meet the November 2021 and 2022 regulatory approved in-service dates," Fanning said. "Executing this strategy resulted in substantial progress at the site and we reached all major milestones in 2019." Open vessel testing began at unit 3 in November, while the main control room was ready for testing in December. The total project is now 84% complete, he said, with direct construction of unit 3 now 85% complete and that of unit 4 is 63% complete. The aggressive site work plan established in April 2019 set a goal of approaching 90% completion of unit 3 direct construction by year-end.

<https://world-nuclear-news.org/Articles/Early-start-up-of-Vogtle-units-possible-says-South>

Trump's Nevada play leaves nation's nuclear waste in limbo

Eric Wolff and Anthony Adragna

Politico, February 22, 2020

President Donald Trump is seeking to woo Nevada voters by abandoning the GOP's decades of support for storing the nation's nuclear waste under a mountain northwest of Las Vegas — a move that could drag the White House into an unsolvable political stalemate.

Trump, who is targeting a state that he narrowly lost to Hillary Clinton in 2016, announced the turnabout in a tweet this month, writing: “Nevada, I hear you on Yucca Mountain and my Administration will RESPECT you!” He also pledged to find “innovative approaches” to find a new place to store the 90,000 metric tons of nuclear plant leftovers stranded at 120 temporary storage sites — an impasse that is on course to cost taxpayers tens of billions of dollars.

<https://www.politico.com/news/2020/02/22/trump-nevada-nuclear-waste-yucca-mountain-116663>

ATF assemblies complete first fuel cycle at Hatch

World Nuclear News, February 26, 2020

Hatch 1 was restarted on 4 March 2018 after the loading of lead test assemblies using an iron-chromium-aluminium fuel cladding material, known as IronClad, and coated zirconium fuel cladding, known as ARMOR. IronClad material is designed to provide oxidation resistance and "excellent material behaviour" over a range of conditions, with low oxidation rates of at higher temperatures further improving safety limit margins, according to supplier Global Nuclear Fuels (GNF).

Two variants of IronClad material were installed at Hatch 1: one in a fuel rod form but not containing fuel, while the other was in the form of a solid bar segment. The IronClad lead test assemblies are the first developed through the US Department of Energy's (DOE's) Enhanced Accident-tolerant Fuel programme to be installed in a commercial nuclear reactor. ARMOR coating is applied to a standard zirconium fuel rod. It provides enhanced debris protection and greater resistance to oxidation compared with standard zirconium cladding.

<https://world-nuclear-news.org/Articles/ATF-assemblies-complete-first-fuel-cycle-at-Hatch>

U.S. senators unveil bill to support renewable and nuclear power, efficiency

Timothy Gardner

Reuters, February 28, 2020

The top two senators on the U.S. Senate energy committee unveiled a bipartisan energy legislation package on Thursday that would support renewable energy, efficiency measures and nuclear power, and aides said it should move quickly to a vote in the chamber. The American Energy Innovation Act compiles more than 50 bills that were considered by the Senate Energy Committee over the last year. Before becoming law, it would have to be passed by the Senate and House of Representatives and signed by President Donald Trump.

The legislation, sponsored by Senate Energy Chairman Lisa Murkowski, a Republican and Joe Manchin, the panel's top Democrat, contains measures to support wind and solar power, energy efficiency, advanced batteries, and building facilities to capture carbon emissions at power plants and from the air for storage underground.

<https://www.reuters.com/article/us-usa-energy-senate/u-s-senators-unveil-bill-to-support-renewable-and-nuclear-power-efficiency-idUSKCN20L2Y1>

Europe

NATO chief dismisses Macron nuclear strategy call

Business Standard, February 16, 2020

NATO Secretary General Jens Stoltenberg said Saturday that thanks to the US and Britain's atomic weapons, Europe was already protected by a longstanding and effective nuclear umbrella. While a NATO member, France does not make its atomic weapons available to the alliance, but in a major speech last week Macron called for dialogue among EU countries about what role the French nuclear deterrent could play. Stoltenberg, who last year clashed with Macron over the French leader's claims NATO was suffering "brain death" in its geopolitical thinking, gave his latest suggestion a frosty reception.

"We have to remember that we have a European nuclear deterrent today -- 28 allies deliver that every day and it's not only a promise, but it's something that has been there for decades," Stoltenberg told reporters at the Munich Security Conference. "It's tried and tested, we exercise it, and it's institutionalised, and it is the ultimate security guarantee for Europe." France is the EU's only nuclear power after Brexit and Macron has championed the idea of European "strategic autonomy" -- the ability to defend itself without relying on the US -- though he insists on his commitment to NATO. Stoltenberg said France was a "highly valued ally" whose nuclear capabilities contributed to NATO's overall security. German Defence Minister Annegret Kramp-Karrenbauer welcomed the French suggestion while insisting it did not mean undermining US nuclear protection. "If we reinforce Europe, it means above all reinforcing the European pillar of NATO," she said.

https://www.business-standard.com/article/pti-stories/nato-chief-dismisses-macron-nuclear-call-120021600040_1.html

Macron 'broke the nuclear taboo': Poland rebuffs France's play for European independence from US

Joel Gehrke

Washington Examiner, February 17, 2020

French President Emmanuel Macron sees his country's nuclear arsenal as a military key to political leadership in the European Union, according to U.S. and European officials. "We can say that he broke [the] nuclear taboo, to a certain extent, which is a serious thing for societies to remind that there is such a thing like nuclear threats," Polish Foreign Minister Jacek Czaputowicz told the Washington Examiner in an exclusive interview after the Munich Security Conference. "Everybody knows there are nuclear weapons, but we do not talk about that. You start to talk; you want to show something."

The full scope of Macron's ambition remains unclear, but he has invoked France's nuclear weapons repeatedly in the weeks since the United Kingdom left the EU. He returned to that theme on Saturday, touting the value of that arsenal in political disputes with the United States, such as the fissure between Washington and European capitals over the value of the 2015 Iran nuclear deal. "We have to create our own capability that bestows credibility on us, so that we can protect ourselves and that we can be able to act," Macron said during a question-and-answer session at the conference. "If we do not have the ability to act, then in foreign policy, we will not be credible, especially with regards to the United States."

<https://www.washingtonexaminer.com/policy/defense-national-security/macron-broke-the-nuclear-taboo-poland-rebuffs-frances-play-for-european-independence-from-us>

France shuts down first reactor of Fessenheim nuclear plant near German border

DW, February 22, 2020

French energy company EDF has confirmed that it has turned off one reactor of its oldest nuclear power plant. The plant, located directly on the border to Germany, has drawn frequent protests in recent years. EDF SA, a French energy company, said that it had completed the shut down of one reactor at its oldest nuclear power plant in Fessenheim near the border of Germany. The nuclear power plant's second and last reactor will be shut down on June 30.

The company told media outlets that the 900-megawatt reactor's shutdown began at 8:30 pm on Friday and ended in the small hours of Saturday. The shut down was completed normally, but it was

an emotional moment for those in the control room, according to EDF. Around 100 people, including employees, reportedly protested against the shutdown. German and Swiss officials have long demanded that French energy officials close the aging Fessenheim nuclear power plant, which is located on the border of France near Germany and Switzerland, near Freiburg in southwestern Germany. "The time has finally come," said German Environment Minister Svenja Schulze on Friday in Berlin, adding that shutting down Fessenheim would make Germany "safer." Schulze also said that Germany would keep lobbying its neighbors to commit to phasing out nuclear power. "Nuclear power is not a climate savior. It is risky, expensive and leaves behind radioactive waste for thousands of generations."

<https://www.dw.com/en/france-shuts-down-first-reactor-of-fessenheim-nuclear-plant-near-german-border/a-52466064>

DOD Fights a Fake Nuclear War in Europe

Rachel S. Cohen

Air Force Magazine, February 23, 2020

Russia fires a nuclear weapon at a U.S. installation overseas. The U.S. retaliates in kind. How does it all play out? U.S. Strategic Command simulated that scenario for Defense Secretary Mark Esper during a visit this week to Offutt Air Force Base, Neb. The exercise is part of the Pentagon's routine slate of wargames and other events that it uses to consider its steps if nuclear war erupts, and comes as the U.S. is pursuing so-called "tactical" nuclear weapons to counter similar assets in Russia's stockpile.

The idea of a tactical nuke is that, because they could do less damage than a larger weapon, a military might see them as a useful tool for regular battlefield operations. The exercise featured a pretend Defense Secretary and a President facing a situation where Russia dropped a low-yield nuclear weapon on "a site on NATO territory" in wartime, a senior defense official told reporters Feb. 21. The United States hit back in a "limited response" using another nuclear weapon.

"You go through the conversation that you would have with the Secretary of Defense and then with the President, ultimately, to decide how to respond," the official said. "They played out that game, and [Esper] got a good understanding for how that went." Rep. Jeff Fortenberry (R-Neb.) sat in on the gathering to learn more about the process as well, the official said. Esper also visited nuclear missile and bomber crews at Minot Air Force Base, N.D., as part of the deterrence- and modernization-focused trip. The Pentagon and other players in the defense world often ponder the question of how nuclear conflict might unfold if Russia attacked Europe. A recent Slate article noted that, in a different scenario, Obama-era National Security Council members looked at how the U.S. might react if Russia invaded a Baltic state and fired a low-yield nuke at NATO troops or at a base in Germany.

<https://www.airforcemag.com/dod-fights-a-fake-nuclear-war-in-europe/>

Britain confirms new nuclear warhead project after US officials spill the beans

Andrew Chuter

Defence News, February 25, 2020

The British government has confirmed it is developing a new nuclear warhead for its missile submarines, days after the U.S. revealed the program was going ahead before Parliament had been informed. In a written statement to Parliament, Defence Secretary Ben Wallace confirmed Feb. 25 that Britain is working on a new warhead to equip its Trident missile-armed nuclear submarine fleet.

“To ensure the Government maintains an effective deterrent throughout the commission of the Dreadnought Class ballistic missile submarine we are replacing our existing nuclear warhead to respond to future threats and the security environment,” Wallace said. The announcement was not expected to be made prior to publication of the defense, security and foreign policy review scheduled for late this year. But the Conservative government’s hand was forced when U.S. officials revealed last week the program was up and running. That caused a stir in the U.K., as high-profile programs like the nuclear deterrent are usually announced in Parliament first. It’s only a courtesy, but if Parliament is not informed first, ministers can be forced to attend the House of Commons to make a statement.

“The decision is basically a forgone conclusion, but the announcement has come sooner than expected. We were looking at probably next year but certainly not before the defense and security review due for release towards the end of the year,” said David Cullen , the director at the U.K.-based Nuclear Information Service, an independent organization promoting awareness of nuclear weapons issues.

<https://www.defensenews.com/global/europe/2020/02/25/britain-confirms-new-nuclear-warhead-project-after-us-officials-spill-the-beans/>

Nuclear warfare: How Sweden and Germany plan to curb the threat

DW, February 25, 2020

With the nuclear threat seemingly growing, a nonproliferation treaty is being put to the test. Sixteen states hoping to strengthen the agreement held talks last year in Stockholm — now they are to meet again in Berlin. Thirty years after the end of the Cold War, the thought of nuclear war is again sparking concern: The United States, Russia and China are modernizing their arsenals. Iran is enriching more uranium in response to the US withdrawing from a landmark nuclear deal. Meanwhile, North Korea is testing warheads and rockets in an attempt to scare off any number of potential enemies.

Many experts agree, the threat of nuclear war has grown. In order to change that, 16 countries are meeting this Tuesday in Berlin. At the invitation of German Foreign Minister Heiko Maas, they are picking up talks that began last June in Stockholm. Indirectly, the meeting is about what is considered the world's most important tool for stemming the nuclear threat: the Treaty on the Non-Proliferation of Nuclear Weapons, or NPT. This agreement is revisited every five years. In two months, its 190 signatories will gather for four weeks of talks in New York. In the run-up to this conference, Swedish diplomats have warned the "NPT community" not to "turn up empty-handed in 2020." To prevent that, Sweden launched the Stockholm Initiative to carve out joint proposals for the upcoming talks in New York.

<https://www.dw.com/en/nuclear-warfare-how-sweden-and-germany-plan-to-curb-the-threat/a-52499281>

Europe, China and Russia urge preservation of Iran nuclear deal

DW, February 26, 2020

China, France, Germany, Russia, the UK and Iran have met to voice support for the nuclear deal. The group criticised the US for its withdrawal from the agreement. Six nations on Wednesday called for adherence to the Joint Commission of the Joint Comprehensive Plan of Action (JCPOA) — better known as the Iran nuclear deal. The meeting in Brussels cited concerns over the impact of US sanctions imposed on Iran and the 2018 withdrawal from the agreement.

The commission, attended by representatives of China, France, Germany, Russia, the United Kingdom and Iran, was chaired by EU High Representative Josep Borrell Fontelles and European Union External Action (EEAS) Secretary General Helga Maria Schmid.

<https://www.dw.com/en/europe-china-and-russia-urge-preservation-of-iran-nuclear-deal/a-52544410>

Russia

Always a Step Ahead: Putin Reveals What Russia Will Do in Case Nuclear Weapons Become Obsolete

Sputnik, February 16, 2020

The Russian president suggested that while nuclear weapons may eventually become less effective than they are today, Russia may adopt other, more advanced types of weaponry. Commenting on the prospects of potentially enshrining Russia's status as nuclear power in the country's constitution, Russian President Vladimir Putin argued that it might not be necessary.

During his meeting with a working group tasked with preparing the new amendments to the Russian Constitution, Putin explained that someday, nuclear weapons may become obsolete, and that Russia may adopt other, more advanced types of weaponry. He also noted how "certain experts abroad" work on rendering nuclear weapons "meaningless" to their owners, and how attempts to thwart Russia's nuclear capabilities via anti-ballistic missile defense systems were thwarted in turn with the development of hypersonic weapons.

<https://sputniknews.com/russia/202002131078306762-always-a-step-ahead-putin-reveals-what-russia-will-do-in-case-nuclear-weapons-become-obsolete/>

Russia ready to discuss INF-banned missiles deployment moratorium with France

TASS News Agency, February 17, 2020

Russia would negotiate the moratorium on intermediate and shorter-range missiles deployment with France, Foreign Minister Sergey Lavrov told journalists. Following Washington's unilateral abandonment of the Intermediate and Shorter-range Nuclear Forces (INF) Treaty, Russian President Vladimir Putin sent detailed letters to all Western leaders, in which he outlined Russia's assessment of the situation and called on the foreign leaders to prevent the agreements on these types of nuclear forces from disappearing, the minister recalled.

The president noted that Russia declared a moratorium on deployment of intermediate and shorter-range missiles until Washington deploys such missiles in any region of the world. "None of Putin's recipients, besides [French President Emmanuel Macron] noticed that, in his message, [Putin] expressed readiness to discuss possible verification vehicles for such mutual moratorium. Macron, on the other hand, did notice it, and expressed his interest in this kind of dialogue. As you understand yourself, we will, of course, discuss these topics with the French," the minister noted.

<https://tass.com/politics/1120937>

Russia to produce intermediate-range missile in 6 months, depending on US steps — senator

TASS News Agency, February 17, 2020

Russia is able to produce ground-based intermediate and shorter-range missiles within six months, should the US make steps on development, production and deployment of such missiles in third countries, says Russia's Federation Council Committee on Defense and Security head Viktor Bondarev.

"Considering the equipment our factories have, the scientific potential our military institutes, design bureaus and companies have, we are able to fill this gap - the absence of ground-based intermediate and shorter range missiles - in the most minimal time span. We often visit the industry factories, we see their equipment. Of course we might be unable to create a new missile very fast, but it is possible to bring a missile to tests within six to twelve months, and then we will have [such] missile," Bondarev said.

<https://tass.com/defense/1120795>

Russian inspectors visit military facility in Romania under Vienna Document

TASS News Agency, February 19, 2020

A group of Russian military inspectors has visited a military facility of the Romanian Armed Forces in accordance with the 2011 Vienna Document on implementing confidence and security building measures, the Krasnaya Zvezda (Red Star) newspaper reported on Wednesday citing director of the National Nuclear Risk Reduction Center Sergey Ryzhkov.

Russian inspectors visited the military facility at its usual location in the time of peace. At a briefing, they received information from commanders about servicemen, as well as about the main systems of weapons and equipment. Such assessment visits are made with the aim of verifying information about the military forces and plans on deployment of main weapons systems and military equipment.

<https://tass.com/defense/1121699>

Russia's top brass to sign deal for two more Borei-A strategic nuclear-powered subs

TASS News Agency, February 21, 2020

Russia's Defense Ministry is set to sign a contract with the United Shipbuilding Corporation in August for the construction of two more Project 955A (Borei-A) nuclear-powered strategic missile-carrying submarines, a source in the domestic defense industry told TASS on Friday. "A decision has been made to sign a contract at the Army 2020 forum for building two more Borei-A missile-carrying submarines. Under the terms of the contract, both ships will be laid down at the Sevmash Shipyard (part of the United Shipbuilding Corporation) in 2021. They will be built under the existing state armament program through 2027," the source said.

<https://tass.com/defense/1122941>

US embarks on dangerous game simulating nuclear strike on Russia - Russian diplomat

TASS News Agency, February 22, 2020

Moscow condemns Washington's attempts to simulate a limited nuclear strike on Russia, Russian Deputy Foreign Minister Sergei Ryabkov told TASS on Saturday. "The United States continues a series of command-staff exercises and other drills involving the simulation of limited nuclear strikes, particularly - as it became known recently - on targets in Russia," he said, commenting on a recent military drill in the US. "We condemn such actions because they clearly show that Washington is

determined to pursue the path of confrontation and keep lowering the threshold for the use of nuclear weapons," Ryabkov added.

"The US is embarking on a highly dangerous game instead of focusing on efforts to strengthen the arms control system that would also cover nuclear weapons," the senior Russia diplomat pointed out. "As we have stressed on numerous occasions, we would use nuclear weapons only in two exceptional cases - if Russia faces an attack with weapons of mass destruction or an aggression involving the large-scale use of conventional arms that puts the country's existence at risk," he emphasized.

<https://tass.com/politics/1123065>

New US doctrines considerably lower nuclear threshold — Russia's top diplomat

TASS News Agency, February 25, 2020

Washington's new doctrinal guidelines considerably lower the threshold of using nuclear weapons, Russian Foreign Minister Sergey Lavrov said at the Disarmament Conference on Tuesday. "We note with concern that Washington's new doctrinal guidelines considerably lower the threshold of nuclear weapons use. Notably, this is taking place amid the US official refusal to ratify the Comprehensive Nuclear-Test-Ban Treaty and also in conditions of the persistent deployment of US nuclear weapons on the territory of some NATO allies and the continued practice of the so-called joint nuclear missions," Russia's top diplomat stated. Now it has come to the conduct of drills by the US, which practice the use of nuclear weapons against targets on the Russian territory. Europeans are also drawn into these exercises, Lavrov added.

<https://tass.com/politics/1123545>

Russia Outraged by 'Mini' U.S. Nuclear Drill

Moscow Times, February 25, 2020

The United States has staged a mock limited nuclear strike on Russia, an unnamed senior Pentagon official said in an unprecedented disclosure that angered Russian lawmakers. During the simulation the official described as a "mini-exercise," "Russia decides to use a low-yield limited nuclear weapon against a [U.S.] site on NATO territory."

"In the course of [the] exercise, we simulated responding with a nuclear weapon," the official said Friday. "It was a limited response." The United States regularly practices the mechanics of nuclear warfare, the U.S. government's National Defense Industrial Association trade magazine reported Friday. However, the outlet noted that it is "unusual" for senior defense officials to disclose the simulations' results or for the defense secretary to participate. Russian lawmakers accused the U.S. of sowing fear within Europe and defended its military presence there.

<https://www.themoscowtimes.com/2020/02/25/russia-outraged-by-mini-us-nuclear-drill-a69397>

Russia, Spain to cooperate in decommissioning

World Nuclear News, February 26, 2020

Russian nuclear fuel manufacturer TVEL has signed a Memorandum of Understanding with Spanish engineering firms ENUSA, ENSA and IDOM on cooperation in the decommissioning and dismantling of nuclear facilities, as well as in nuclear waste management and related engineering and

consulting services. They have also signed a roadmap for the development of various projects in the near term.

Rosatom estimates that the emerging market in nuclear decommissioning services is worth about USD100 billion out to 2030, and last year announced it planned to establish a decommissioning division as a subsidiary of TVEL. The documents were signed by Dmitry Bazhenov, TVEL's director for global development; Roberto González, ENUSA's director for business development and technology; Mariano Rodríguez, ENUSA's business development and commercial manager; Rafael Triviño, ENSA's director general; María Vega, ENSA's vice president for business development; and Xabier Ruiz, IDOM's director of nuclear services.

<https://world-nuclear-news.org/Articles/Russia-Spain-to-cooperate-in-decommissioning>

Russia test-launches Tsirkon hypersonic missile from ship for first time

TASS News Agency, February 27, 2020

Russia test-launched its Tsirkon hypersonic missile from a ship for the first time when the Project 22350 frigate Admiral Gorshkov fired the weapon from the Barents Sea against a ground target in January, two sources in defense circles of Russia's North-Western Federal District told TASS.

"In accordance with the program of the Tsirkon's state trials, the Admiral Gorshkov test-launched this missile from the Barents Sea against a ground target at one of military testing ranges of the Northern Urals in early January," one of the sources said. The source also informed that the test-launches of the Tsirkon hypersonic missile from seaborne delivery vehicles would be continued in 2020. "After the program of test-launches from the board of the Admiral Gorshkov is over, these missiles will be test-fired from nuclear-powered submarines," the source commented.

<https://tass.com/defense/1124339>

Russia's Northern Fleet continues tests of hypersonic weapons

TASS News Agency, February 28, 2020

The Northern Fleet continues trials of Russia's latest hypersonic weapons, Defense Minister Army General Sergei Shoigu said on Friday. "The trials of new armament, including hypersonic weapons, continue. All this will make it possible to qualitatively boost the combat potential of the Russian Navy's Northern and other fleets," Shoigu told the ministry's board meeting. The ministry's board meeting discussed, in particular, the fulfillment of the Northern Fleet's plan of activity for 2019-2025.

<https://tass.com/defense/1124795>

Companies work on securing medical isotope supplies

World Nuclear News, February 28, 2020

Three recent announcements will help secure future supplies of vital medical radioisotopes. Westinghouse Electric Company and Nordion (Canada) Inc are to work together on technology to produce cobalt-60 in pressurised water reactors (PWRs); Framatome and Kinectrics have launched a new joint venture to produce lutetium-177 in partnership with Bruce Power; and BWXT Technologies' proprietary technetium-99m generators have passed a testing milestone.

Cobalt-60 (Co-60) is widely used to sterilise medical instruments as well as in cancer treatments. It is produced by irradiating rods of cobalt-59 in a nuclear reactor, and according to World Nuclear Association, almost all the world's supply of the radioisotope is produced in Candu reactors, mostly in Canada but also in Argentina, China and South Korea. Some is also produced in Russia, in RBMK reactors and one fast neutron reactor. Westinghouse and Nordion - a Sotera Health Company - have signed a Letter of Intent under which they will develop "innovative isotope production technology" to produce the isotope in PWRs.

<https://world-nuclear-news.org/Articles/Companies-work-on-securing-medical-isotope-supplie>

West Asia

Iran

Rouhani says Iran will never yield to U.S. pressure for talks

Reuters, February 16, 2020

Iran will never hold talks with the United States under pressure, President Hassan Rouhani said on Sunday, adding that Tehran's help was essential in establishing security in the Middle East. Relations between Tehran and Washington reached crisis point in 2018 after U.S. President Donald Trump abandoned a 2015 pact between Iran and world powers under which Tehran accepted curbs to its nuclear program in return for the lifting of sanctions. Tensions spiked further following the killing of Iran's most prominent military commander Qassem Soleimani on Jan. 3 by U.S. drone attacks at Baghdad airport. In retaliation, Iran attacked U.S. targets in Iraq in January.

Trump has adopted a policy of "maximum pressure" to force Tehran to negotiate a broader deal that further curbs Iran's nuclear work, ends its missile program and its involvement in regional proxy wars. "Iran will never negotiate under pressure ... We will never yield to America's pressure and we will not negotiate from a position of weakness," Rouhani said in a televised news conference.

<https://www.reuters.com/article/us-iran-politics-rouhani-usa/rouhani-says-iran-will-never-yield-to-u-s-pressure-for-talks-idUSKBN20A0EG>

EU's Borrell says remains committed to keep nuclear deal alive

Tehran Times, February 16, 2020

European Union foreign policy chief Josep Borrell said on Sunday that he will remain committed to keep the 2015 nuclear deal, officially known as the JCPOA, alive. "As coordinator I remain committed to listen to all sides and keep the #NuclearDeal alive," he said in a tweet. He posted the tweet after a meeting with Russian Foreign Minister Sergey Lavrov on the sidelines of the Munich Security Conference. "Met with Russian Foreign Minister Lavrov on the margins of @MunSecConf. Discussions included #MEPP and #JCPOA," Borrell wrote.

Foreign Minister Mohammad Javad Zarif said on Friday that Iran's decisions to reduce JCPOA commitments are reversible if Europe takes "meaningful" steps in preserving the JCPOA. Tehran's moves to ramp-up its nuclear program in the past few months are reversible "providing that Europe takes steps that are meaningful," Zarif told reporters on the sidelines of the Munich Security Conference, according to AP. Borrell has said that Europe must ensure Iran's benefits from the nuclear deal if it wants the deal to survive. "If we want the Iran nuclear deal to survive, we need to

ensure that Iran benefits if it returns to full compliance,” he wrote in an article in the Project Syndicate published on February 8.

<https://www.tehrantimes.com/news/445183/EU-s-Borrell-says-remains-committed-to-keep-nuclear-deal-alive>

Lavrov discusses Iran nuclear deal with Zarif, Borrell

Tehran Times, February 16, 2020

Russian Foreign Minister Sergey Lavrov discussed the Iran nuclear deal as well as the situation in the Middle East, particularly in Syria, with his Iranian counterpart Mohammad Javad Zarif and EU foreign policy chief Josep Borrell, the Russian Foreign Ministry said on Sunday.

"A discussion was held on the situation in the Middle East and North Africa, as well as on the Joint Comprehensive Plan of Action [JCPOA] for the Iranian nuclear program. Some issues of Russian-EU relations were touched upon," the ministry said in a statement after a meeting between Lavrov and Borrell at the Munich Security Conference. Lavrov's meeting with Zarif also took place on the sidelines of the conference. The two foreign ministers discussed the strengthening of multifaceted Russian-Iranian cooperation, among other issues. "An in-depth exchange of views also took place on a number of issues on the international agenda, including the situation in Syria and issues related to the Joint Comprehensive Plan of Action," the Russian Foreign Ministry said in a statement after the meeting.

<https://www.tehrantimes.com/news/445187/Lavrov-discusses-Iran-nuclear-deal-with-Zarif-Borrell>

Iran urges E3 to fulfill JCPOA obligations if they want nuclear standoff solved

Tehran Times, February 16, 2020

The only path to put an end to the current nuclear standoff between Iran and the Europe is that the European trio, also called E3, fulfill their undertakings under the Joint Comprehensive Plan of Action (JCPOA), Foreign Minister Mohammad Javad Zarif said on Saturday.

In a meeting with his French counterpart Jean-Yves Le Drian on the margins of the Munich Security Conference, Zarif underscored that France, Germany and Britain should return to their commitments, noting that honoring commitments will settle the existing dispute in the most appropriate way. "The way that the E3 is currently pursuing does not help resolve the problems," Zarif added. The two chief diplomats also exchanged views over bilateral ties and regional developments. Zarif said on Friday that Iran's decisions to reduce nuclear commitments are reversible if Europe takes "meaningful" steps in preserving the 2015 nuclear deal. Zarif reiterated Iran's stance that all of its moves to ramp-up its nuclear program in the past few months are reversible, "providing that Europe takes steps that are meaningful", according to AP.

<https://www.tehrantimes.com/news/445198/Iran-urges-E3-to-fulfill-JCPOA-obligations-if-they-want-nuclear>

'Hit with a truck' - How Iran's missiles inflicted brain injury on U.S. troops

Phil Stewart, Idrees Ali

Reuters, February 20, 2020

In the wee hours of Jan. 8, Tehran retaliated over the U.S. killing of Iran's most powerful general by bombarding the al-Asad air base in Iraq. Among the 2,000 troops stationed there was U.S. Army Specialist Kimo Keltz, who recalls hearing a missile whistling through the sky as he lay on the deck of a guard tower. The explosion lifted his body - in full armor - an inch or two off the floor. Keltz says he thought he had escaped with little more than a mild headache. Initial assessments around the base found no serious injuries or deaths from the attack. U.S. President Donald Trump tweeted, "All is well!" The next day was different.

"My head kinda felt like I got hit with a truck," Keltz told Reuters in an interview from al-Asad air base in Iraq's western Anbar desert. "My stomach was grinding." Keltz, who said he had concussion symptoms for days, is among 109 soldiers diagnosed with traumatic brain injuries in the wake of last month's attack, a figure that has steadily risen as more troops report symptoms and get medical screening. Reuters interviewed more than a dozen officials and soldiers and spoke with brain-injury specialists to assemble the most comprehensive account so far of the nature of the soldiers' injuries and how they sustained them.

<https://www.reuters.com/article/us-usa-pentagon-braininjury-insight/hit-with-a-truck-how-irans-missiles-inflicted-brain-injury-on-u-s-troops-idUSKBN20E17K>

FATF puts Iran on blacklist

Tehran Times, February 21, 2020

The Paris-based Financial Action Task Force (FATF) on Friday placed Iran on its blacklist after Iran refused to comply with the watchdog's requirements. Opposition to join the FATF grew after the U.S. abrogated the 2015 nuclear deal and imposed the harshest ever sanctions in history against Iran. The FATF appeared to leave the door ajar for Iran saying "countries should also be able to apply countermeasures independently of any call by the FATF to do so." The United States, the Zionist regime and Saudi Arabia had made great efforts to pressure the international body to blacklist Iran.

<https://www.tehrantimes.com/news/445392/FATF-puts-Iran-on-blacklist>

Tehran slams Washington's 'insane' sanctions

February 21, 2020

Foreign Ministry spokesman Abbas Mousavi has said the government, nation and all pillars of the Islamic Republic of Iran do not attach the slightest significance to the United States' "insane" sanctions. According to The Associated Press, the Trump administration on Thursday ratcheted up pressure on Iran by slapping sanctions on top members of Iran's Guardian Council, a body that vets candidates before elections. The sanctions came a day before Iranians go to the polls to participate in the parliamentary elections. Those targeted include the chief of the council, Ahmad Jannati, and senior member Mohammad Yazdi. The sanctions also affect Abbas Ali Kadkhodaei, who serves as the council's spokesman. "Such measures are nothing but failure, disappointment and collapse of the American regime's maximum pressure policy," Mousavi said on Friday, according to Mehr.

"Those who have put 83 million Iranians under their sanctions, economic terrorism and maximum pressure but failed have now targeted Iran's electoral system out of desperation and disappointment," he said. This proves the extent of their fear from Iran's democracy and people's turnout, the spokesman concluded. Mousavi also said Iran's approach in the fight against maximum pressure is "maximum resistance". It's the American rulers who will have to bow before the Iranian nation's

resolve and will have to learn that they must speak with the Iranian people through reverence, not sanctions, he added.

<https://www.tehrantimes.com/news/445384/Tehran-slams-Washington-s-insane-sanctions>

Zarif discusses nuclear deal with Austrian FM

Tehran Times, February 23, 2020

Foreign Minister Mohammad Javad Zarif and his Austrian counterpart Alexander Schallenberg discussed the latest developments surrounding the 2015 nuclear deal in a meeting in Tehran on Sunday. The two foreign minister held two rounds of talks. The meeting took place one day after Zarif discussed regional issues and the nuclear deal, officially known as the JCPOA, with his Dutch counterpart Stef Blok who visited Iran on Friday and Saturday. Iran is unhappy with the European Union for failing to honor its commitments under the JCPOA since Donald Trump unilaterally withdrew the U.S. from the agreement and slapped illegal sanctions against Iran. Zarif and Schallenberg also discussed expansion of Tehran-Vienna relations and the pressing regional and international developments. Prior to his visit to Tehran, Schallenberg had said he will be taking a “European message” to Tehran on Saturday and Sunday.

<https://www.tehrantimes.com/news/445475/Zarif-discusses-nuclear-deal-with-Austrian-FM>

Iran nuclear deal commission to meet in Vienna

Arab News, February 24, 2020

Meeting comes as the European parties try to find a way to persuade Iran to come back into line. Tehran would be prepared to move back toward the deal if Europe provides ‘meaningful’ economic benefits. The remaining parties to the Iran nuclear deal will meet in Vienna on Wednesday, the EU’s diplomatic service announced, after Britain, France and Germany launched a dispute process over Iran’s successive pullbacks.

The office of EU diplomatic chief Josep Borrell — who is tasked with convening the commission under the dispute mechanism — said the get-together would be chaired on his behalf by senior official Helga Schmid. The meeting comes as the European parties try to find a way to persuade Iran to come back into line with the deal after Tehran made a series of steps away in protest at the US pulling out and reimposing sanctions.

<https://www.arabnews.com/node/1632536/middle-east>

Larijani says EU just keeps talking about preserving nuclear deal

Tehran Times, February 24, 2020

Iranian Parliament Speaker Ali Larijani has criticized Europe for failure to take practical actions to save the 2015 nuclear deal, saying the European Union just keeps talking about preserving the agreement, officially known as the JCPOA. “The situation around the JCPOA shows that Europe has just kept talking for about one year but Iran’s economic benefits in the nuclear deal have not been safeguarded,” he said during a meeting with Austrian Foreign Minister Alexander Schallenberg in Tehran on Sunday. Larijani also said that the Instrument in Support of Trade Exchanges (INSTEX) is ineffective and useless. Schallenberg, for his part, said that any effort must be made to keep the nuclear deal alive. INSTEX has been designed by the European Union to facilitate legitimate trade with Tehran. It was introduced on January 31, 2019, by France, Germany, and Britain, the three

countries party to the nuclear deal. INSTEX is supposed to be a financial channel and a special mechanism for transferring money in spite of U.S. sanctions on Iran. Its objective is to facilitate Iran's transactions with European companies.

In late November 2019, Belgium, Denmark, Finland, the Netherlands, Norway, and Sweden issued a joint statement announcing becoming shareholders of INSTEX. “In light of the continuous European support for the agreement and the ongoing efforts to implement the economic part of it and to facilitate legitimate trade between Europe and Iran, we are now in the process of becoming shareholders of the Instrument in Support of Trade Exchanges (INSTEX) subject to completion of national procedures. INSTEX was established by France, Germany and the United Kingdom in January 2019,” read the statement, published by the Foreign Ministry of Finland. Iran has likened INSTEX to a beautiful car which has no gasoline.

<https://www.tehrantimes.com/news/445521/Larijani-says-EU-just-keeps-talking-about-preserving-nuclear>

Iran sustains military spending in face of U.S. ‘maximum pressure’: general

Tehran Times, February 24, 2020

Former Defense Minister Brigadier General Hossein Dehqan has rejected claims by the Trump administration that Tehran had cut its defense budget due to the United States’ “maximum pressure” policy against Iran. Iran has sustained its military spending in the face of debilitating U.S. sanctions, Dehqan said in an interview with the Financial Times published on Monday. Over the past years, Iran has made major breakthroughs in its defense sector and attained self-sufficiency in producing military equipment and hardware despite sanctions and economic pressures on the country.

The Islamic Republic maintains that its military power poses no threat to other countries and is based on its military doctrine of deterrence. “Militarily, today we are definitely in a better situation than three years ago when Mr. Trump came to power, in all aspects — from staff, organization to equipment. And we will be better in five years if Mr. Trump is re-elected,” said General Dehqan. “In the region, since the formation of ISIS and the rise of insecurity, we have used all our capacity to organize, train and consult our allies.” Trump administration officials have claimed one of their key successes has been to force Tehran to reduce Iran’s military spending by almost 30 percent, including cuts to the Islamic Revolution Guards Corps (IRGC)’s budgets.

<https://www.tehrantimes.com/news/445512/Iran-sustains-military-spending-in-face-of-U-S-maximum-pressure>

Joint Commission of JCPOA to meet on February 26

February 24, 2020

The Joint Commission of the Joint Comprehensive Plan of Action (JCPOA) will take place in Vienna on February 26. “A meeting of the Joint Commission of the Joint Comprehensive Plan of Action (JCPOA) will take place in Vienna on 26 February. The Joint Commission will be chaired on behalf of the EU High Representative Josep Borrell Fontelles by EEAS Secretary General Helga Maria Schmid and will be attended by representatives of China, France, Germany, Russia, United Kingdom and Iran,” the official website of the European Union said in a statement.

The previous meeting of the commission was held in December 2019. “All participants emphasized the key importance of full and effective implementation by all sides as well as their determination to

pursue all efforts to preserve the agreement,” read the statement published on the European Union official website after the meeting of the JCPOA joint commission. U.S. President Donald Trump quit the nuclear deal, known as the JCPOA, in May 2018 and introduced the harshest ever sanctions on Iran. EU foreign policy chief Josep Borrell said on February 16 that he will remain committed to keep the JCPOA alive. “As coordinator I remain committed to listen to all sides and keep the #NuclearDeal alive,” he said in a tweet.

<https://www.tehrantimes.com/news/445519/Joint-Commission-of-JCPOA-to-meet-on-February-26>

Iranian security official accuses White House of cover-up about missile attack

Reuters, February 25, 2020

Ali Shamkhani, secretary of Iran’s top national security body, accused the White House on Tuesday of withholding information about an Iranian missile attack on a U.S. base in Iraq. Shamkhani did not give details in a tweet reacting to accusations by U.S. Secretary of State Mike Pompeo on Tuesday that the Islamic Republic may have withheld information about the spread of coronavirus inside the country.

“Pompeo’s expression of concern about what he deems to be a cover-up by #Iran over #corona comes while no exact news about the truth of #Ain al-Asad...has been published by the White House,” Shamkhani tweeted. Iran fired a barrage of missiles at the Ain al-Asad airbase in Iraq in early January, a few days after the top Iranian military commander was killed by a U.S. drone strike in Iraq. The U.S. military has said that more than 100 U.S. soldiers were diagnosed with traumatic brain injury from the Iranian attack while Iranian military officials have said the missile strike killed several American soldiers. Pompeo said on Tuesday the United States was “deeply concerned” Iran may have covered up details about the spread of coronavirus, and he called on all nations to “tell the truth” about the epidemic.

<https://www.reuters.com/article/us-iran-usa/iranian-security-official-accuses-white-house-of-cover-up-about-missile-attack-idUSKBN20J29Q>

JCPOA session has nothing to do with dispute mechanism: Tehran

Tehran Times, February 25, 2020

Iranian Foreign Ministry spokesman Abbas Mousavi said on Monday that the session of the JCPOA Joint Commission in Vienna on Wednesday will have nothing to do with the nuclear deal’s dispute mechanism. Speaking to reporters, Mousavi offered some details about the meeting. “The meeting that is going to be held on Wednesday, February 26, will be a regular and periodic session of the JCPOA Joint Commission that will be convened at the level of deputy (foreign) ministers and political directors,” he said, the Foreign Ministry website reported. The official website of the European Union first announced the meeting. “A meeting of the Joint Commission of the Joint Comprehensive Plan of Action (JCPOA) will take place in Vienna on 26 February. The Joint Commission will be chaired on behalf of the EU High Representative Josep Borrell Fontelles by EEAS Secretary General Helga Maria Schmid and will be attended by representatives of China, France, Germany, Russia, United Kingdom and Iran,” it said on Monday. The previous meeting of the commission was held in December 2019.

“All participants emphasized the key importance of full and effective implementation by all sides as well as their determination to pursue all efforts to preserve the agreement,” read the statement published on the European Union official website after the meeting of the commission. U.S.

President Donald Trump quit the JCPOA in May 2018 and introduced the harshest ever sanctions on Iran. EU foreign policy chief Josep Borrell said on February 16 that he will remain committed to keep the JCPOA alive. “As coordinator I remain committed to listen to all sides and keep the #NuclearDeal alive,” he said in a tweet.

<https://www.tehrantimes.com/news/445554/JCPOA-session-has-nothing-to-do-with-dispute-mechanism-Tehran>

Iran nuclear deal commission meets to try to save 2015 accord

Arab News, February 26, 2020

Landmark agreement pact has been crumbling since the US withdrew from it in 2018 and reimposed crippling sanctions on Iran. The remaining parties to the faltering Iran nuclear deal will meet in Vienna on Wednesday in their first gathering after Britain, France and Germany launched a dispute process over Tehran’s successive pullbacks. The meeting comes as the parties try to find a way to save the landmark 2015 agreement, which has been crumbling since the US withdrew from it in 2018 and reimposed crippling sanctions on Iran.

The Europeans hope to persuade Tehran to come back into line with the deal curbing Iran’s nuclear program after Tehran made a series of steps away in protest at the US pull-out. Wednesday’s meeting at political directors’ level, convening the commission set up by the deal, will be chaired by EU senior official Helga Schmid.

<https://www.arabnews.com/node/1633426/middle-east>

Parties to Iran nuclear deal meet but make little progress on saving it

Reuters, February 26, 2020

Parties to Iran’s nuclear deal made little progress on Wednesday toward saving the agreement as Iran is still breaching many of its central terms in response to U.S. sanctions, but efforts to ease Tehran’s economic pain continued, delegates said. Wednesday’s meeting of senior officials came more than a month after European parties to the deal - France, Britain and Germany - formally accused Iran of violating its terms, setting off a process that could eventually reimpose international sanctions lifted under the agreement.

But, in a move underlining how torn the Europeans are between pressuring Iran not to breach the deal and still trying to save it, the European Union’s foreign policy chief said this month the powers would indefinitely extend the time limits in that process to avoid having to reimpose sanctions. Delegates said that process, known as the dispute resolution mechanism, was not even discussed at Wednesday’s meeting, though the Europeans did criticize Iran. “Serious concerns were expressed regarding the implementation of Iran’s nuclear commitments under the agreement,” the EU foreign policy service’s Secretary General Helga Schmid, who chaired the meeting, said in a statement. “Participants also acknowledged that the re-imposition of U.S. sanctions did not allow Iran to reap the full benefits arising from sanctions-lifting,” she added.

<https://in.reuters.com/article/iran-nuclear-deal/parties-to-iran-nuclear-deal-meet-but-make-little-progress-on-saving-it-idINL5N2AQ5WS>

Russia, Iran to hold consultations on nuclear cooperation in spring: Ryabkov

Tehran Times, February 27, 2020

Moscow and Tehran will hold consultations on nuclear cooperation in the spring, and the future of the project of Iran's Fordow Fuel Enrichment Plant re-purposing will be on the agenda, among other topics, Russian Deputy Foreign Minister Sergey Ryabkov told Sputnik on Wednesday.

After Iran has started enriching uranium in Fordow, as part of reducing its obligations under the nuclear deal, Rosatom's subsidiary TVEL has suspended its work on modifying two cascades of gas centrifuges in Fordow to produce stable isotopes for medical purposes, since it is technically impossible to produce stable isotopes in the same facility. "We are conducting consultations on various aspects of our nuclear cooperation. Rosatom and the Atomic Energy Organization of Iran are coordinating their schedules directly. We are not dragging on this, while it is clear that the situation has not improved, compared to the moment when the project was suspended. But we will hold consultations," Ryabkov said. "Yes," he added, when asked whether the consultations could be held in the spring.

<https://www.tehrantimes.com/news/445614/Russia-Iran-to-hold-consultations-on-nuclear-cooperation-in>

Turkey

Third batch of Turkish nuclear energy experts graduate from Russia

Middle East Monitor, February 16, 2020

The third batch of Turkish experts studying in the field of nuclear energy have graduated from the Moscow Engineering Physics Institute (MEPhI) of the Russian National Research Nuclear University. The agency said the new graduates will work at Akkuyu Nuclear Power Plant in Mersin, southern Turkey.

Speaking at the graduation ceremony, İbrahim Halil Dere, Nuclear Energy general director in the Turkish Ministry of Energy and Natural Resources, congratulated the new graduates, adding that it is time for Turkey to reach its 60-year-old dream of acquiring nuclear energy. In 2010, Turkey began the construction of the Akkuyu plant in accordance with an intergovernmental agreement with Russia. The nuclear reactor is scheduled to start operating in 2023, while the plant is expected to be fully operational by 2025.

<https://www.middleeastmonitor.com/20200214-third-batch-of-turkish-nuclear-energy-experts-graduate-from-russia/>

Turkish women set to be nuclear energy pioneers

Dilara Hamit

Anadolu Agency, February 26, 2020

Three Turkish women who have been studying at Moscow's National Nuclear Research University are preparing to become pioneers at Turkey's first nuclear power plant. The students told Anadolu Agency about the six and a half years of education they have received, being women and minorities in the field and opportunities the power plant will bring.

An intergovernmental agreement was signed between Turkey and Russia in May 2010 for the Akkuyu plant, which will consist of four VVER-1200 power units with a total installed capacity of 4,800 megawatts. The students said they encourage all women to follow their dreams without

hesitation, even when people say the job is not suitable for women. Karacak, who went to Russia to study nuclear power plant design, says she has been getting her education in Russian and had no idea of the language until she moved there. She said there should be no limitations on professions based on gender, noting she was one of the few women in her field.

<https://www.aa.com.tr/en/economy/turkish-women-set-to-be-nuclear-energy-pioneers/1745044>

Israel

World powers express ‘serious concerns’ about Iran’s nuclear program

Philipp Jenne and David Rising

The Times of Israel, February 26, 2020

The world powers that remain party to the nuclear deal with Iran expressed “serious concerns” Wednesday about Tehran’s violations of the pact, while acknowledging that time was running out to find a way to salvage it. Wang Qun, Chinese ambassador to the United Nations in Vienna, told reporters after talks in Vienna between the parties to the deal, including Iran, that they are “racing against time to work out a specific solution so as to safeguard” the 2015 agreement.

The Joint Comprehensive Plan of Action, as the deal is known, promises Iran economic incentives in return for curbs on its nuclear program, with the goal of preventing Iran from developing a bomb — something the country’s leaders insist they do not want to do, but which a UN watchdog and many Western governments have warned Iran had worked towards in the past.

<https://www.timesofisrael.com/world-powers-express-serious-concerns-about-irans-atom-program/>

UAE

UAE issues reactor license for first Arab nuclear power plant

Arab News, February 17, 2020

The United Arab Emirates has issued an operating license for the first reactor at the Arab world’s first nuclear power plant, a senior official at the nuclear regulator said on Monday, paving the way for it to start production later this year. The Barakah nuclear power plant in Abu Dhabi, which is being built by Korea Electric Power Corporation (KEPCO), was originally due to open in 2017, but the start-up of its first reactor has been delayed several times. The license granted to the plant’s operator Nawah Energy Company will be for 60 years, Hamad Al-Kaabi, deputy chairman of Federal Authority for Nuclear Regulation (FANR) told a news conference.

Nawah can now start preparing for commercial operations as trials will last for a few months, Kaabi said. When completed Barakah will have four reactors with a total capacity of 5,600 megawatts (MW). “Today marks a new chapter in our journey for the development of peaceful nuclear energy with the issuing of the operating license for the first (unit of) Barakah plant,” Abu Dhabi Crown Prince Sheikh Mohammed bin Zayed wrote on his official twitter account. Kaabi said that construction of the second reactor was “95% finished” and that FANR has started looking into an operating license for it.

<https://www.arabnews.com/node/1628986/middle-east>

Saudi Arabia

Saudi Arabia wants an end to arms race in region

Arab News, February 26, 2020

The Cabinet on Tuesday reiterated its stance to support international efforts for regional disarmament and expressed its concern over the Iranian role that is detrimental to the peace and stability of the Middle East. The meeting, chaired by King Salman, expressed its concern over Tehran's announcement of downgrading its commitment to the 2015 nuclear agreement and an escalation of threats from terrorist armed militias supported by the Iranian regime. The ministers also discussed a UN project, funded by Saudi Arabia and the Russian Federation, to curb terrorism, organized crime and illicit weapons trade in Central Asia. The program, which will be implemented in 2020-21, seeks to establish preventive mechanisms to make the world a safer place.

The Cabinet also lauded plans to develop the Jafurah gas field, which will be developed with a \$110 billion investment. The ministers stressed the Kingdom's commitment to diversifying its economy, benefiting from its resources and bolstering its pioneering position in the global energy market. The Jafurah field — which lies southeast of Ghawar, the world's largest conventional oil field — holds an estimated 200 trillion cubic feet of wet gas, and is capable of producing 130,000 barrels per day of ethane and 500,000 barrels per day of gas liquids and condensates.

<https://www.arabnews.com/node/1633296/saudi-arabia>

Misc

UAE's Barakah nuclear plant's unit 1 to begin operations

Khaleej Times, February 17, 2020

The Federal Authority for Nuclear Regulation, FANR, the UAE's independent nuclear regulator, on Monday announced it has granted Nawah Energy Company the operating licence for Unit 1 of the Barakah Nuclear Power Plant, making the UAE the first country in the Arab region to operate a nuclear power plant. In a press conference in Abu Dhabi, FANR said it also authorised Nawah to commission and operate Unit 1 of the nuclear power plant located in Al Dhafra, Abu Dhabi, under a 60-year licence.

“Today marks a new chapter in our journey for the development of peaceful nuclear energy with the issuing of the operating license for the first Barakah plant. As we prepare for the next 50 years to safeguard our needs, our biggest strength is national talent,” His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces His Highness Sheikh Mohamed Bin Zayed Al Nahyan, Abu Dhabi Crown Prince and Deputy Supreme Commander of the UAE Armed Forces tweeted.

<https://www.khaleejtimes.com/photos/nation/uaes-barakah-nuclear-plants-unit-1-to-begin-operations#slide5>

Russia, Zambia will find options to finance construction of nuclear center — official

TASS News Agency, February 18, 2020

Russia and Zambia will find options for financing nuclear science and technology in the African country, speaker of Russia's Federation Council (upper chamber of the Russian parliament) Valentina Matvienko said at a meeting with Zambian President Edgar Chagwa Lungu on Tuesday.

"Now the start of the construction of a center for nuclear science and technology has been suspended due to financial issues. I would like to say that your request submitted to the Russian president last autumn is being carefully considered by our ministries and departments. I'm confident that jointly we will find options to promote funding to roll out the construction of a center for nuclear science and technology," she said.

<https://tass.com/economy/1121393>

Nuclear Power Plant and Equipment Market Expected to Witness a Sustainable Growth over 2025

Open PR, February 19, 2020

Global nuclear power plant and equipment market was valued at \$36,484 million in 2017, and is projected to reach \$49,038 million by 2025, growing at a CAGR of 3.7% from 2018 to 2025. India accounted for more than one-fifth share in the Asia-Pacific nuclear power plant and equipment market in 2017.

Nuclear power is the energy produced by power plants by obtaining heat from the fission of uranium fuel in a nuclear reactor. This energy is further utilized for generating electricity through turbines. A nuclear power plant houses pumps, valves, steam generators, turbines, electric generators, condensers, and analogous equipment, similar to a large coal-fired power plant. It excludes the reactor, which plays the role of a boiler in a fossil-fuel power plant.

<https://www.openpr.com/news/1936779/nuclear-power-plant-and-equipment-market-expected-to-witness>

Australian fusion company secures patents for laser-boron technology

Nuclear Engineering International, February 24, 2020

Australian fusion start-up HB11, a spin-off from the University of New South Wales (UNSW) in Sydney, has secured patents for its unique laser-driven technique for fusion energy generation. Unlike earlier methods, the laser-driven technique for creating fusion energy does not rely on radioactive fuel, the university said in a statement. HB11 Energy's concept, which was conceived by UNSW Emeritus Professor of theoretical physics Heinrich Hora, differs radically from other experimental fusion projects. The preferred approach employed by most fusion groups involves heating Deuterium-Tritium fuel to a temperature of almost 15 million degrees Celsius. By contrast, HB11's hydrogen-boron fusion is achieved using two powerful lasers whose pulses apply precise non-linear forces to compress the nuclei together.

While most other sources of power production, such as coal, gas and nuclear, rely on heating liquids such as water to drive turbines, the energy generated by hydrogen-boron fusion converts directly into electricity. "After investigating a laser-boron fusion approach for over four decades at UNSW, I am thrilled that this pioneering approach has now received patents in three countries," said Professor Hora. "These patents represent the eve of HB11 Energy's seed-stage fundraising campaign that will establish Australia's first commercial fusion company, and the world's only approach focused on the safe hydrogen - boron reaction using lasers," he added.

<https://www.neimagazine.com/news/newsaustralian-fusion-company-secures-patents-for-laser-boron-technology-7787404>

US, Canadian, Norwegian military to carry out observation flight over Russia

TASS News, Agency, February 25, 2020

A joint mission of the United States, Canada and Norway will perform an observation flight above Russia's territory on February 25-29, chief of the Russian National Center for Nuclear Risk Reduction Sergei Ryzhkov said on Tuesday. "Implementing the international Treaty on Open Skies, a joint mission of the United States, Canada and Norway will perform an observation flight above the territory of the Russian Federation in the period of February 25-29, on the Swedish Saab 340 aircraft to take off from Kubinka airfield [near Moscow]," he said.

Russian specialists will be present on board the aircraft to oversee that the observation flight is performed in accordance with the previously agreed parameters and includes equipment permitted by the treaty.

<https://tass.com/defense/1123409>

Companies work on securing medical isotope supplies

World Nuclear News, February 28, 2020

Three recent announcements will help secure future supplies of vital medical radioisotopes. Westinghouse Electric Company and Nordion (Canada) Inc are to work together on technology to produce cobalt-60 in pressurised water reactors (PWRs); Framatome and Kinectrics have launched a new joint venture to produce lutetium-177 in partnership with Bruce Power; and BWXT Technologies' proprietary technetium-99m generators have passed a testing milestone.

Cobalt-60 (Co-60) is widely used to sterilise medical instruments as well as in cancer treatments. It is produced by irradiating rods of cobalt-59 in a nuclear reactor, and according to World Nuclear Association, almost all the world's supply of the radioisotope is produced in Candu reactors, mostly in Canada but also in Argentina, China and South Korea. Some is also produced in Russia, in RBMK reactors and one fast neutron reactor. Westinghouse and Nordion - a Sotera Health Company - have signed a Letter of Intent under which they will develop "innovative isotope production technology" to produce the isotope in PWRs.

<https://world-nuclear-news.org/Articles/Companies-work-on-securing-medical-isotope-supplie>

East Asia

Japan

TEPCO ordered to cough up after it refused deal on compensation

The Asahi Shimbun, February 20, 2020

The district court here sided with local residents seeking compensation for psychological damage resulting from the 2011 nuclear disaster after the operator of the stricken facility snubbed mediation efforts for a settlement. The court on Feb. 19 ordered Tokyo Electric Power Co. to pay 12.03 million yen (\$108,000) to 50 of the 52 plaintiffs. The plaintiffs had sought 99 million yen in damages for

their psychological suffering due to their voluntary evacuation after the triple meltdown at the Fukushima No. 1 nuclear power plant and fear of being exposed to high levels of radiation.

In his ruling, Presiding Judge Toru Endo noted that residents who evacuated voluntarily found themselves living an uncertain and insecure existence with no future prospects.

The court acknowledged that those who didn't evacuate were also unable to move around freely, given that they lived in fear and anxiety over the prospect of being exposed to radiation. The court ordered TEPCO to pay between 22,000 yen and 286,000 yen to each eligible plaintiff, in addition to a uniform compensation sum of 120,000 yen per person that the utility had already paid. The court recommended a settlement last December, the first of its kind among 30 or so class action lawsuits filed around the country over the nuclear accident, but TEPCO refused to comply.

<http://www.asahi.com/ajw/articles/13144481>

First A-bomb exhibition to open in Pearl Harbor in July

The Asahi Shimbun

February 22, 2020

Officials of Hiroshima and Nagasaki hope an upcoming exhibition at the Battleship Missouri Memorial in Honolulu showing the devastation unleashed by the atomic bombs will "convey the significance of peace beyond nationalities." It will be held on the 75th anniversary of the dropping of the atomic bombs, and the first at the battleship, on which Japan officially surrendered to end World War II. "It will have a historic importance to organize the event at the symbolic site of Pearl Harbor," said Takuo Takigawa, director of the Hiroshima Peace Memorial Museum. "We will show exhibits that can present the terrifying aspects of warfare."

The Pacific War broke out when Japan staged a surprise attack on Pearl Harbor on Dec. 7, 1941, and ended after Tokyo signed the surrender agreement on the deck of the USS Missouri on Sept. 2, 1945, following the dropping of the two nuclear bombs. Terumi Tanaka, 87, a senior official of the Japan Confederation of A- and H-Bomb Sufferers Organizations, said he expects the planned exhibit to help deepen the understanding of the atomic bombings among Americans.

<http://www.asahi.com/ajw/articles/13111775>

Onagawa reactor passes screening under new NRA safety standards

The Asahi Shimbun, February 26, 2020

A nuclear reactor in Miyagi Prefecture damaged in the 2011 Great East Japan Earthquake and tsunami passed a key safety screening on Feb. 26, bringing it closer to reactivation. The Nuclear Regulation Authority officially approved the safety of the Onagawa nuclear power plant's No. 2 reactor. Approval from local authorities is still required to restart the plant, which is operated by Tohoku Electric Power Co.

No opposition to the plan has been raised by heads of the Onagawa and Ishinomaki municipal governments, which co-host the plant. Tohoku Electric Power plans to complete safety upgrades at the plant by the end of March 2021. The plant is expected to be back online in 2021 or later.

<http://www.asahi.com/ajw/articles/13166013>

Poll: 57% oppose dumping water into ocean from Fukushima plant

The Asahi Shimbun, February 28, 2020

Fifty-seven percent of respondents to a poll in Fukushima Prefecture say they oppose the government's plan to release tons of contaminated water from the Fukushima No. 1 nuclear power plant into the ocean. In the survey, conducted by The Asahi Shimbun and Fukushima Broadcasting Co. on Feb. 22-23, 31 percent supported the plan. About 1.2 million tons of water contaminated with radioactive substances are in storage tanks at the crippled plant, operated by Tokyo Electric Power Co.

The government plans to remove most of the radioactive substances from the water and release the diluted portion into the ocean. The government has committed to disposing of waste substances, including contaminated soil removed in the decontamination work, within 30 years and locating a final waste disposal site outside of Fukushima Prefecture.

<http://www.asahi.com/ajw/articles/13172248>

North Korea

Kim Jong Un makes first public appearance in 22 days amid virus outbreak

Cynthia Kim

Reuters, February 16, 2020

North Korean leader Kim Jong Un made his first public appearance in 22 days amid an outbreak of coronavirus, state media reported on Saturday, to visit a national mausoleum and mark the anniversary of the late leader Kim Jong Il's birth. Kim Jong Un paid tribute to the statue of former leader Kim at Pyongyang's Kumsusan Palace of the Sun, his first public appearance since he attended Lunar New Year celebrations on Jan. 25, state media Korean Central News Agency (KCNA) said.

North Korea has not confirmed any cases of the new coronavirus, but state media said the government was extending to 30 days the quarantine period for people showing symptoms, and all government institutions and foreigners living in the country were expected to comply "unconditionally."

<https://www.reuters.com/article/us-northkorea-anniversary/kim-jong-un-makes-first-public-appearance-in-22-days-amid-virus-outbreak-idUSKBN2090TE>

US opens Pandora's box

Pyongyang Times, February 27, 2020

The US halted the performance of its obligation under the Intermediate-Range Nuclear Forces Treaty on the pretext of Russia's breach of the treaty in February last year and unilaterally withdrew from the pact in August. The problem is that the US test-fired a banned missile using MK-41 launcher 16 days after its withdrawal. The event revealed that the US rocket launcher deployed in Eastern Europe is capable of launching not only interceptor missiles but also offensive missiles. Once the US' intermediate-range missiles are deployed in Europe, it will take only 10-12 minutes for a missile to reach Moscow, which means a serious threat to Russia.

At present, the US is putting spurs to military buildup including the modernization of intercontinental ballistic missiles, submarines and strategic bombers, while claiming that it falls behind other powers in the Asia-Pacific region in the development of a series of strategic weapons. A typical example is the test-fire of ICBM Minuteman 3 at the Vandenberg air base in California on Feb 5 this year. Russia declared that it would not deploy intermediate-range missiles first, but take countermeasures if the US does so in Europe, warning that any country that deploys the US' intermediate-range missiles will be a potential target of nuclear attack of Russia. President Putin stated his country is willing to work for making new agreements in the field of arms control, but before such a process begins it will continue to build up its nuclear forces by reequipping the Strategic Rocket Forces with modern missile systems and the naval nuclear force with modern submarines. The Chinese Foreign Ministry spokesman asserted that the real intention of the US withdrawal from the treaty is to free itself from the fetters and develop advanced missiles at will so as to hold in check China and Russia and furthermore get the absolute military upper hand. The world media and experts comment that given the US' abrogation of the INF Treaty has removed the actual brake to arms race and nuclear war, the Pandora's box containing arms race has been opened.

<http://www.pyongyangtimes.com.kp/?bbs=33399>

North Korea's Kim guides military drills, warns 'serious consequences' if virus breaks out: KCNA

Hyonhee Shin

Reuters, February 29, 2020

North Korean leader Kim Jong Un oversaw military drills on Friday, state media KCNA said, a rare public outing amid efforts to prevent an outbreak of the coronavirus in the isolated country. North Korea has not confirmed any cases of the virus, but state media said a month-long quarantine period had been imposed for people showing symptoms and "high-intensity" measures were taken including reinforcing checks in border regions and at airports and sea ports. On Feb. 16, Kim made his first public appearance in 22 days to visit a mausoleum marking the anniversary of the birth of his father and late leader Kim Jong Il.

The military drill was to "judge the mobility and the fire power strike ability" on the frontline and eastern units and ended to the "great satisfaction" of Kim, KCNA said on Saturday. "Soldiers, who have firmly armed themselves with a-match-for-a-hundred idea of the Party and trained under the simulated conditions of actual battles, reduced a target islet to a sea of flames," KCNA said. In a separate dispatch, KCNA said Kim has also convened a meeting of the ruling Workers' Party's powerful politburo where a stricter enforcement of "top-class anti-epidemic steps" was discussed to prevent the spread of the virus.

<https://www.reuters.com/article/us-northkorea-missiles/north-koreas-kim-guides-military-drills-warns-serious-consequences-if-virus-breaks-out-kcna-idUSKCN20M38I>

South Korea

Renewable energy yet to fill nuclear void

Nam Hyun-woo

Korea Times, February 20, 2020

The government's drive to phase out nuclear power in Korea is based on the idea that solar, wind, and LNG power plants will be able to fill the energy void which will result from the lowering of the country's reliance on nuclear power. Experts said, however, the growth of the domestic renewable energy industry remains at a tepid level and is failing to keep up with the rapid collapse of the nuclear energy industry. They warned that this may trigger an "energy vacancy" in the near future. According to the government's third Energy Master Plan, the government will "gradually reduce" the country's reliance to nuclear power by "not extending the lifespan of old nuclear plants and not building new power plants in the future." To complement the energy reduction, the government plans to increase the proportion of energy generated from renewable sources to as much as 35 percent of the total by 2040.

In line with such a policy, the Moon Jae-in administration has nullified the construction of four new nuclear plants and shut down the Wolsong-1 nuclear reactor before the end of its lifespan in 2018. Also, the construction of Shin Hanul-3 and 4 plants was halted in 2017. Given the 60-year lifespan of nuclear reactors and the final operation period of the last nuclear plant in Korea, the government say Korea will be free of nuclear power plants by 2079, claiming there is enough time for the country to "make the transition toward renewable energies."

http://www.koreatimes.co.kr/www/tech/2020/02/129_283810.html

Can Korea continue nuke reactor exports after Barakah?

Nam Hyun-woo

Korea Times, February 20, 2020

Korea's first nuclear reactor export to the United Arab Emirates is now an official success after the Middle Eastern country gave the first reactor at the Barakah Nuclear Plant — built by Korea Electric Power Corp. (KEPCO) — the go ahead. However, questions remain as to whether Korea can continue exporting its nuclear reactors and related technologies, as the current government is attempting to phase out nuclear power from the country's main energy resources. The UAE Federal Authority for Nuclear Regulation issued an operating license for unit 1 of the plant, and following this, fuel will start to be loaded and full commercial operation commenced within several months. In December 2009, the state-run KEPCO won the project to build four APR-1400 reactors in Barakah and broke ground in July 2012. Initially, unit 1 was expected to begin commercial operations in 2017, but the UAE government postponed it several times for extensive reviews and inspections.

Industry officials said the Barakah operation could be proof of the technological prowess of KEPCO, but will not likely be a springboard for Korea to gain momentum in exporting nuclear reactors, given the political drive to phase out nuclear power here. Since winning the Barakah project in 2009, KEPCO and its subsidiary Korea Hydro & Nuclear Power (KHNP) have been vying to win additional orders in overseas nuclear projects, but are yet to see any noticeable outcome. According to the Ministry of Trade, Industry and Energy, there are approximately 20 nuclear plants in the U.K., Poland, Saudi Arabia, the Czech Republic, Kazakhstan, Uzbekistan and Bangladesh which are yet to finalize a bidder on reactor provision, meaning they are up for grabs for nuclear power firms across the world.

http://www.koreatimes.co.kr/www/tech/2020/02/129_283763.html

South Korea seeks 'speedy resumption' of U.S.-North Korea nuclear talks

Reuters, February 24, 2020

South Korea's foreign minister called on Monday for a quick resumption of stalled U.S.-North Korean nuclear talks, adding that her government stood ready to engage with Pyongyang to facilitate dialogue. Kang Kyung-wha, addressing the U.N.-sponsored Conference on Disarmament, said the goal remained complete denuclearisation on the divided Korean peninsula.

“A speedy resumption of the U.S.-DPRK negotiations is critical so that all stakeholders maintain and build upon the hard-won momentum for dialogue. We stand ready to engage with the North in a way that facilitates and accelerates the U.S.-DPRK dialogue,” Kang told the Geneva forum. South Korea was promoting projects with the Democratic People's Republic of Korea, she said, using the formal name of the isolated country. “And we will do so adhering faithfully to the international sanctions regime on the DPRK,” Kang added.

<https://www.reuters.com/article/us-southkorea-northkorea-nuclear/south-korea-seeks-speedy-resumption-of-u-s-north-korea-nuclear-talks-idUSKCN20I138>

Op-Ed India

India Has Nuclear Bombs—But It's Not Defined As a 'Nuclear Power'

Ramesh Thakur

National Interest Blog, February 18, 2020

Among the big changes in the global strategic landscape since the Nuclear Non-Proliferation Treaty came into force in 1970 is the expansion of the nuclear club from five to nine. All five nuclear powers at that time were recognised as nuclear-weapon states by the NPT. Since then, four more countries have gate-crashed the exclusive nuclear club: Israel, India, Pakistan and North Korea. The NPT is supplemented by several other treaties and arrangements that together constitute the broader non-proliferation regime. All are designed to reinforce the NPT standards. On the one hand, part of the NPT bargain is to help non-nuclear-weapon states in the peaceful applications of nuclear energy. On the other, the treaty prohibits any form of assistance to non-nuclear states in getting the bomb. Accordingly, assistance with peaceful applications of nuclear energy is subject to safeguards, and increasingly stringent export controls were instituted to eliminate the risk of nuclear trade being diverted into weapons programs.

India's next target in the quest to normalise its global nuclear status was membership of the four export control regimes. India believes it is well qualified for all four given its firm commitment to non-proliferation, effective export controls and capacity to produce regime-regulated goods and technologies. Initially India sought entry into all four regimes as a package, but then diplomatic sense prevailed and India was accepted into the Missile Technology Control Regime, the Wassenaar Arrangement and the Australia Group over 2016–2018.

<https://nationalinterest.org/blog/buzz/india-has-nuclear-bombs%E2%80%94its-not-defined-nuclear-power-124721>

Trump's India Visit Should Enhance US-India Space Cooperation

Namrata Goswami

The Diplomat, February 21, 2020

Space is one of the primary factors for enhancing a country's comprehensive national security and technological capability. Today, the race to space is much more than a "flags and footprint" mission reminiscent of the Apollo era. It is a quest to establish permanent presence on the moon and beyond. China's long-term space ambitions articulate such a grand vision. It is in this context that space cooperation between the United States and India — the world's oldest and the world's largest democracies, respectively — acquires a strategic context and urgency. Unlike U.S. Congressional restrictions on U.S.-China space cooperation, the United States and India are not affected by any such restrictions. Given the ways that their strategic partnership has improved over the years, it is rather a puzzle that their cooperation in space is not even closer and strategically aligned.

During U.S. President Donald Trump's first visit to India on February 24-25, 2020, it is appropriate for space cooperation to be elevated to a higher realm, given both countries have similar long-term ambitions for a moon landing, and robotic exploration missions to Mars. Both the United States and India have made changes to their military space forces, with the U.S. establishing the Space Force and India constituting a Defense Space Agency. At the "Howdy Modi" event in Houston in September 2019, part of Indian Prime Minister Narendra Modi's broader visit to the United States, Trump specified that "here in America, we are creating the United States Space Force, and we're working closely with India to enhance space cooperation... we will pioneer new frontiers in space, working together, raising the sights of humanity. We will uphold our values, defend our liberty, and control our destiny."

<https://thediplomat.com/2020/02/trumps-india-visit-should-enhance-us-india-space-cooperation/>

The nuclear deal will continue to be a big facilitator

Anil Kakodkar

The Week, February 22, 2020

The India-US civil nuclear deal of 2008 was the first attestation of trust by the US in India as a "responsible country with advanced nuclear technology". Though it opened the doors for cooperation in a host of areas, there is a feeling that the deal itself did not achieve some of its immediate goals. This is true, but only in a limited way. The nuclear deal, however, had other objectives, too, and has been a success story. A major constraint for India was accessing uranium. After the deal, which helped India overcome the Nuclear Suppliers Group (NSG) restrictions, we no longer face that problem. Our existing nuclear plants—old and new—which were working below capacity, are now working at near full capacity. Several of our indigenously designed Pressurised Heavy Water Reactors (PHWRs) have shown continuous uninterrupted high-capacity operation extending for years.

In the developed world, which is the largest consumer of energy, the demand is plateauing. It may even dip as environmentally conscious people get frugal with consumption. But developing economies have growing energy requirements. The market is shifting to these countries, whether it is in supplying technology or fuel. The Indian experience with pressurised heavy water reactors and thorium would be of value in enabling a quickly implementable solution to address this challenge. So, the nuclear deal will continue to be a big facilitator in the coming years, with India emerging as a

major nuclear manufacturing hub as well as a solution provider for wider penetration of nuclear energy.

<https://www.theweek.in/theweek/cover/2020/02/22/the-nuclear-deal-will-continue-to-be-a-big-facilitator.html>

US, India Should Enhance Nuclear, Space Cooperation To Further Ties

Ajay Lele

Outlook, February 22, 2020

India-US relations share a long history and has seen up and downs. Prime Minister Jawaharlal Nehru visited the US during 1949. This trip preceded India's formal declaration of neutrality in global affairs. It was a clear statement of intent from India that it is not keen to join either the Soviet or the US camp during the Cold War. Over the years, Indo-US relationship has evolved, though it has been a very bumpy ride. Even today, the US is fully aware that even though India is buying military hardware from it and dumping a 'cost-effective' energy supplier like Iran, it does not necessarily mean that Delhi has given up its 'objectivity'. The US is aware that India values its policy of independence and would not like to join any camps.

Currently, NASA and ISRO are on the same page and are collaborating on various fronts. From India's first mission to Moon (Chandrayaan-1) and the Mars mission (Mangalyaan) to the recently concluded second mission to Moon (Chandrayaan-2), there has been healthy collaboration between these two agencies. They are also jointly working on developing a remote sensing satellite called NISAR. ISRO's launch facilities are routinely used by the US companies for launching their satellites. The US had expected India to send its astronauts for training of the proposed Gaganyaan mission to America. But India opted for its time-tested friend Russia instead. For India-US relationship to grow further, it is important for the US to understand that they need to grow beyond the present structure of seller-buyer arrangements. They need not look at India only from the prism of a 'market' for their defence industry. Though the US has lifted its sanctions, it still reluctant to transfer core technologies to India. Nuclear and space are the perfect sectors where they can make such a beginning.

<https://www.outlookindia.com/website/story/india-news-donald-trump-india-visit-us-india-should-enhance-nuclear-space-cooperation-to-further-ties/347710>

How One Open Hatch Nearly Cost India a \$2.9 Billion Nuclear Submarine

Jeff Schogol

National Interest Blog, February 22, 2020

Accidents happen, but leaving a hatch open when diving is a pretty bad one. New Delhi nearly ruined its new boat that way, but thankfully it was not lost. Call it a lesson learned for the Indian navy, which managed to put the country's first nuclear-missile submarine, the \$2.9 billion INS Arihant, out of commission in the most boneheaded way possible. The Arihant has been out of commission since suffering "major damage" some 10 months ago, due to what a navy source characterized as a "human

error” — to wit: allowing water to flood to sub’s propulsion compartment after failing to secure one of the vessel’s external hatches.

The incident is also quite an embarrassment — and strategic concern — for the Indian Armed Forces. A Russian Akula-class attack sub modified to accommodate a variety of ballistic missiles, the Arihant represented a major advance in India’s nuclear triad after its completion in October 2016. (India in 1974 became the 6th country to conduct a successful nuclear test.) Indeed, the Arihant’s ability to deliver K-15 short-range and K-4 intermediate-range nuclear missiles was envisioned as a powerful deterrent against India’s uneasy nuclear state neighbor, Pakistan.

<https://nationalinterest.org/blog/buzz/how-one-open-hatch-nearly-cost-india-29-billion-nuclear-submarine-125901>

China

China's space achievements draw global attention

China Daily, February 24, 2020

A total of nearly 100,000 overseas social media users show interest in China's recent space achievements, according to an online quiz co-conducted by Global Media Services Center of People's Daily Online and Beihang University. The quiz, consisting of three multiple choice questions about China's recent space achievements, was posted on Beihang Twitter account on December 25, 2019. The first question was about Yuegong-1, or Lunar Palace 1, a simulated space lab in which Chinese volunteers tested living conditions in the lunar environment, setting a record of 370 days for the longest stay in a self-contained cabin. Background data indicated that the quiz reached out to 31,415 Beihang Twitter account users.

The second question, also the one that most people gave an attempt at answering, was "A Beihang alumnus, chief designer of China's Shenzhou spacecraft and leading technician of China's first satellite, was recently inducted into the International Astronautical Federation Hall of Fame. What is his/her name?" 43.8% of quiz takers chose the right answer: Qi Faren. Qi, a well-known space technology expert, was awarded the honor for his substantial contributions to the progress of space science and technology to mankind. 26.3% of quiz takers gave the right answer to the last question concerning Beihang-developed Fengru-3, an oil-powered UAV that set a world record for finishing a non-stop flight lasting 30 hours 6 minutes and 42 seconds.

<https://global.chinadaily.com.cn/a/202002/24/WS5e535e9ea310128217279cea.html>

Pakistan

Present limitations to India’s nuclear triad

Shehar Bano Khan

Daily Times, February 28, 2020

In November 2018, Indian Prime Minister Narendra Modi proudly announced that India’s nuclear triad was complete after the INS Arihant, India’s first nuclear-powered submarine, successfully completed its deterrence patrol. Although it was considered a significant milestone in India’s nuclear capability, the submarine does not considerably add up to India’s second-strike capabilities. There are

still various issues related to its capability, capacity and effectiveness when comprising of an otherwise key dimension of the nuclear triad.

A nuclear triad consists of a three-dimensional capability of launching nuclear missiles from land, air and from undersea. It is very easy to detect land and air launch platforms with sophisticated technology and ground-level intelligence. In theory, an actual nuclear deterrent for a country would depend upon a system that is very difficult or impossible to detect. Such a possibility is offered by a nuclear-powered submarine which, unlike a conventional diesel or electric submarine, has the capability to remain underwater for longer durations of not only weeks but even months. It becomes nearly impossible to detect a nuclear-powered submarine due to its maneuverability and submersion capacity. Deterrence patrol is not a short time affair as in order to assure continuous deterrence – via an adequate second-strike capability – it is necessary that at least one SSBN (Nuclear powered submarine equipped with a ballistic missile) deployed at a readiness level of continuous alert constantly remain under-sea. In principle, it would require more than one SSBN for India to ensure that at least one such platform is deployed at sea for a continuous period of time. The INS Arihant has a limited capacity of an 83-megawatt nuclear power plant and has a very short refueling cycle which affects the submarine's speed and endurance. India, by inducting the INS Arighat in the Arihant class is aiming to enhance such capabilities through incorporating additional submerged platforms as part of its deterrence patrol stratagem. The only hurdle in this scenario would be India's economic commitment to the cause which remains overburdened with other projects aiming at military modernization. Beyond nuclear submarines and attack submarines, India's desire to replicate an America-like naval arrangement or the United Kingdom like submarine signature requires extensive financial and technical evaluation of a second strike 'deterrence patrol' program. Hence India is still on its way to form a blue water navy.

<https://dailytimes.com.pk/566245/present-limitations-to-indias-nuclear-triad/>

5 Ways China Has Turned Pakistan Into a Military Monster

Charlie Gao

National Interest Blog, February 29, 2020

As Pakistan's relationship has soured with the United States in the past two decades, Pakistan's armed forces have largely looked towards Chinese suppliers for equipment. While China has long supplied Pakistan's armed forces, the relationship has deepened in recent years, with Pakistan making major purchases of top-of-the-line Chinese export equipment.

<https://nationalinterest.org/blog/buzz/5-ways-china-has-turned-pakistan-military-monster-128542>

USA

Has US Nuclear Power Reached Its Half-Life?

Joshua Rhodes

Forbes, February 17, 2020

How big is the U.S. nuclear industry, and what is its growth trajectory? The US nuclear industry directly employs about 100,000 persons (indirectly about five times as many) and the sector generates about \$40-50 billion in economic value per year. The US currently has just under 100

operating nuclear reactors for a total of about 100 GW of generation capacity. Nuclear plants have the highest capacity factors (percentage of time they are producing power over a year) of all power plant types and provide the most carbon-free electricity of any other source in the US, about 20% of annual production.

<https://www.forbes.com/sites/joshuarhodes/2020/02/17/has-us-nuclear-power-reached-its-half-life/#484115562cf5>

U.S. senators unveil bill to support renewable and nuclear power, efficiency

Olivia Alperstein

Common Dreams, February 18, 2020

In his State of the Union address on Feb. 4, President Donald Trump declared that Iran “must abandon its pursuit of nuclear weapons,” without acknowledging that he unilaterally withdrew the United States from an international treaty, which was successfully doing just that. It’s vital that the United States get back to the negotiating table and reenter the Iran Deal. Trump also pulled out of the landmark Intermediate-Range Nuclear Forces Treaty between the United States and Russia. This treaty led to the elimination of nearly 2,700 intermediate-range missiles and helped the two countries make tangible progress in stabilization and disarmament efforts. Currently, the most important arms control treaty the United States is still a party to is the New Strategic Arms Reduction Treaty, also known as New START. The treaty is set to expire just a year from now, in February 2021.

In December, Russian President Vladimir Putin offered to immediately extend the New START treaty, without preconditions. But New START’s future remains unclear. Trump has hinted in the past that he may let the treaty simply expire, while senior U.S. officials have said that Washington wants a broader deal involving China. Former United States Secretary of State Dr. Madeleine Albright and former Russian foreign minister Igor Ivanov co-authored a Feb. 10 op-ed in The New York Times urging the United States to work to extend New START. “Doing nothing while waiting for a ‘better’ agreement is a recipe for disaster: We could lose New START and fail to replace it,” they wrote. “The treaty’s agreed limits on nuclear arsenals are too important to be put at risk in a game of nuclear chicken.”

<https://www.commondreams.org/views/2020/02/18/arms-race-no-one-can-win>

Can America Possibly Stop Russia's Country-Destroying Nuclear Torpedo?

Michael Peck

National Interest Blog, February 20, 2020

Or, is Moscow simply bluffing? How do you stop a nuclear-powered torpedo designed to bury enemy cities under a tsunami? Russia's Status-6 "Poseidon" torpedo has excited the fears -- or the overactive imaginations -- of Russia's enemies. Calling it is a torpedo is a misnomer. While the precise capabilities of the weapon are mysterious, it appears to be about 80 feet long -- which makes it more like a mini-submarine or an underwater ballistic missile. Poseidon is propelled by a nuclear reactor to a speed of 115 miles per hour and operates at deep depths up to 3,300 feet. It is armed with

a massive 100-megaton warhead powerful enough to generate a giant tidal wave to destroy coastal cities.

How useful such a weapon would be is debatable. Poseidon is too slow, compared to ICBMs and bombers, to be useful in a first strike or an immediate retaliatory strike. Moving at high speeds may make it so noisy that anti-submarine can detect it, and its autonomous nature brings up all the questions about armed robots (especially ones carrying mega-bombs).

<https://nationalinterest.org/blog/buzz/can-america-possibly-stop-russias-country-destroying-nuclear-torpedo-125181>

We Need to Treat Nuclear War Like the Emergency It Is

Olivia Alperstein

Common Dreams, February 21, 2020

If the current state of global affairs reminds you of an over-the-top plot by a white-cat-stroking James Bond villain, you're not far off. When it comes to nuclear policy, we are closer than ever to a real-life movie disaster. During his February 4 State of the Union address, President Donald Trump declared that "the Iranian regime must abandon its pursuit of nuclear weapons." He omitted the part where he withdrew the United States from the only existing international treaty with the capability to compel the Iranian regime to do so.

The Joint Comprehensive Plan of Action (JCPOA), aka the Iran Deal, is the one international treaty that has effectively de-escalated tensions and ensured continued progress in securing Iran's nonproliferation. It's vital that the United States reenters the Iran Deal, or it could take ages to repair the damage and restart progress. That treaty isn't the only one on the chopping block. The United States has also withdrawn from the landmark Intermediate-Range Nuclear Forces Treaty between the United States and Russia, a vital arms reduction treaty that was responsible for eliminating over 2,600 intermediate-range missiles, bringing tangible progress in stabilization and disarmament efforts between the two countries.

<https://www.commondreams.org/views/2020/02/21/we-need-treat-nuclear-war-emergency-it>

America And Russia Have Enormous Nuclear Arsenals, So Why Do Both Nations Feel At Risk?

Mark B. Schneider

National Interest Blog, February 24, 2020

Even the 2018 Nuclear Posture Review has not done enough in recommending programs to correct the enormous disparity that now exists in non-strategic nuclear weapons. The U.S. mainstream view of Russia has changed quite a bit in the last twenty years, particularly in the last five. We have moved from the fantasy that there was no threat from Russia after the demise of the Soviet Union to a recognition of a serious Russian threat to the U.S. and its allies, including a nuclear threat in the last two years of the Obama administration and the Trump administration. However, characterizing the

relationship between the U.S. and Russia as “competition” as it now appears in U.S. Government documents, does not go far enough. Lockheed and Boeing compete; Russia threatens preemptive nuclear attack. It is unilaterally trying to create a sphere of influence in Eastern Europe and the former Soviet states in the classic 19th Century sense while building the largest nuclear arsenal in the world. There is no competition here but rather a serious threat from Russia.

<https://nationalinterest.org/blog/buzz/america-and-russia-have-enormous-nuclear-arsenals-so-why-do-both-nations-feel-risk-125596>

The Pentagon Just Simulated a 'Limited' Nuclear War With Russia

David Axe

National Interest Blog, February 26, 2020

The Pentagon in late February simulated a “limited” nuclear exchange between U.S. and Russian forces. In other words, a small atomic war. The simulation -- more accurately, the Pentagon’s revelation of the simulation -- appears to be part of the U.S. Defense Department’s effort to secure from Congress billions of dollars in additional funding for new, low-yield nukes.

Some theorists believe low-yield weapons are more useful than high-yield weapons are. But it’s important to note that even a “small” nuclear war would kill tens of millions of people and fundamentally alter life on Earth. The nuke-war simulation occurred during Secretary of Defense Mark Esper’s visit to the headquarters of U.S. Strategic Command in Omaha, Nebraska.

<https://nationalinterest.org/blog/buzz/pentagon-just-simulated-limited-nuclear-war-russia-127112>

Nuclear War Could Be Devastating for America—With or Without a Retaliatory Strike

Joshua M. Pearce

National Interest Blog, February 27, 2020

The White House’s 2021 budget calls for US\$28.9 billion for the Pentagon for nuclear weapons and a 20% increase to \$19.8 billion for the National Nuclear Security Administration. Yet the U.S. already has over 3,000 nuclear weapons. And my research shows that the U.S. could only safely use a fraction of them without killing Americans with an unintended adverse series of cascading environmental effects. My models and those of others show that soot from the burning of cities following numerous nuclear blasts would cause a significant drop in global temperature, blocking the sunlight from reaching the Earth’s surface. This would cause a drop in precipitation, increased ultraviolet radiation resulting from a badly damaged atmosphere, and a breakdown in supply chains and food production.

<https://nationalinterest.org/blog/buzz/nuclear-war-could-be-devastating-america%E2%80%94or-without-retaliatory-strike-127207>

Europe

Nuclear multipolarity: is Macron’s latest proposal for Europe realistic?

United World International, February 21, 2020

Following Brexit, France wants to proclaim itself the new pan-European nuclear guarantor. During a speech at L'École de guerre in Paris, Macron announced that he had ambitious plans to put French nuclear weapons at the heart of EU defense policy. By declaring the French doctrine of nuclear deterrence in the current geopolitical environment, Macron clearly outlined the boundaries of what France is ready to share with other countries after 60 years of nuclear development. After the withdrawal of the United Kingdom from the EU, France remains the only country in the bloc that possesses nuclear weapons, which presumably gives Paris a good chance to take on the role of European military leader... but does it actually?

<https://uwidata.com/8160-nuclear-multipolarity-is-macrons-latest-proposal-for-europe-realistic/>

Europe's nuclear boomerang

Anne Balzer

International Politics & Society, February 21, 2020

Demanding a common European deterrent is counter-productive – and could lead to even more nuclear weapons states. The goal of a world free of nuclear weapons is one of the guiding principles of German foreign policy. A few weeks ago, the conservative politician Johann Wadephul told the Tagesspiegel newspaper: 'Being a good European means cooperating not only on environmental policy, but has to do so also on armaments policy.' He continued: 'Germany should be prepared to contribute to nuclear deterrence with its own assets and capabilities. In exchange, France should place the deterrent under the joint command of the EU or NATO.'

Calls for nuclear weapons in response to international crises are setting back the debate by decades. Although the guiding principles of German foreign policy are often vague and fail to meet the expectations of various players, one thing is clear. Germany is at least dabbling in a new political approach: multilateralism instead of solo action, diplomacy instead of force de frappe. A Franco-German or European nuclear weapons programme would be consistent with the German government's political approach in recent years. Germany and France are already closely working together when it comes to defence, including on the new Future Combat Air System. But a stronger Franco-German or European cooperation on nuclear matters would go against any Alliance for Multilateralism.

<https://www.ips-journal.eu/regions/europe/article/show/europes-nuclear-boomerang-4094/>

Nuclear arms control treaty set for review as divisions over non-proliferation mount

Alexandra Brzozowski

Euractiv, February 27, 2020

As we approach the 50th anniversary of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in March, the United Nations is preparing to review the accord amid growing signs that divisions and distrust are rife among countries that possess nuclear arsenals. "Relationships between states – especially nuclear-weapon states – are fractured. So-called 'great power competition' is the order of the day. Division, distrust and a dearth of dialogue are increasingly the norm," UN disarmament chief Izumi Nakamitsu told a UN Security Council meeting, requested by Germany, on Wednesday (26 February). Nakamitsu warned that "the spectre of unconstrained nuclear competition looms over us for the first time since the 1970s".

Although she did not directly point the finger at US, Russia and China, Nakamitsu warned the world is “witnessing what has been termed a qualitative nuclear arms race – one not based on numbers but on faster, stealthier and more accurate weapons.” “Regional conflicts with a nuclear dimension are worsening, and proliferation challenges are not receding,” she added.

According to the landmark accord, the non-nuclear power states have undertaken not to acquire nuclear weapons and the states with nuclear arsenals are obliged to pursue disarmament, while all have the right to access nuclear technology for peaceful purposes, under certain safeguards. So far, 191 states are parties to the NPT and only India, Pakistan, Israel, North Korea, and South Sudan remain outside. The UN conducts a review conference every five years, with the next one, due in April/May, meant to address the North Korean nuclear and missile developments, the shaky Iranian nuclear deal, last year’s collapse of the Intermediate-Range Nuclear Forces (INF) Treaty, and the continuing modernisation programs of the five recognised nuclear-weapon states.

<https://www.euractiv.com/section/defence-and-security/news/nuclear-arms-control-treaty-set-for-review-as-divisions-over-non-proliferation-mount/>

Russia

Ultimate Doomsday Weapon: Missiles Powered By Nuclear Reactors

Sebastien Roblin

National Interest Blog, February 16, 2020

After days of speculation by Western analysts that a deadly accident on August 8 that briefly spiked radiation levels in northwestern Russia was tied to tests of an exotic nuclear-powered “Skyfall” nuclear-powered cruise missile, Russian sources confirmed to the New York Times the explosion of a “small nuclear reactor.” While there’s a tactical rationale behind Russia’s development of a fast, surface-skimming cruise missile with an unlimited range as a means of bypassing American missile defenses, it strikes many analysts as an inordinately expensive, extremely technically challenging, and—evidently! —downright unsafe.

That’s because the United States has tried it before sixty years earlier—and even with the fast-and-loose safety culture of the Cold War 1960s, the poison-spewing radioactive mega missile it began developing was considered too dangerous to even properly flight test. This project was most famously described in a 1990 article by Gregg Herken for Air & Space Magazine, which remains well worth the read.

<https://nationalinterest.org/blog/buzz/ultimate-doomsday-weapon-missiles-powered-nuclear-reactors-123231>

Meet Russia's Crazy and Deadly Status-6 Nuclear Torpedo

Robert Farley

National Interest Blog, February 16, 2020

Moscow likes to make bold claims about its doomsday weapons. The Status-6 may sound terrifying but it may not actually be built. According to the latest Nuclear Posture Review, Russia is developing a new nuclear torpedo/drone, the Status 6. While the torpedo offers some alarming new capabilities, it's not the first such weapon that the Russians have worked on. More importantly, the Status 6 has some potentially fatal drawbacks that limit its practical effectiveness in a combat scenario.

Nuclear tipped torpedoes have considerable precedent from the Cold War. The earliest designs for the Project 627 "November"-class nuclear-attack submarines envisioned the boats acting as motherships for the T-15 nuclear torpedo, developed to attack NATO port facilities. These torpedoes offered the USSR a way of reducing NATO naval dominance, and also an alternative means of striking the United States. However, the T-15 only had a range of about twenty-five miles and a speed of thirty knots, making it difficult to envision situations in which a submarine could successfully deliver the attack. The project was cancelled, and the Novembers redesigned as normal nuclear attack subs. Later, both the United States and the Soviet Union would introduce nuclear torpedoes optimized for tactical roles.

<https://nationalinterest.org/blog/buzz/meet-russias-crazy-and-deadly-status-6-nuclear-torpedo-124376>

Don't Sleep on Russia's Super-Fast "Avangard" Hypersonic Missile

Mark Episkopos

National Interest Blog, February 20, 2020

Why have a regular missile, when you can have a faster hypersonic one that is harder to shoot down? That is the logic behind Russia's impressive Avangard missile. Russian President Vladimir Putin's March 1, 2018 annual state-of-the-nation address became his most-cited since his 2007 Munich speech. "Listen to us now," he warned NATO after unveiling several hypersonic, nuclear-capable weapons: the Kinzhal missile system, Sarmat ICBM, and the Avangard glide vehicle.

The March 1st address fell under a similar criticism: the Kremlin is bluffing, signalling capabilities that it doesn't have to drive NATO to the negotiating table on terms favorable to Russia. But subsequent developments have borne out an altogether different truth: these weapons are, in fact, quite real, and pose varying levels of strategic threat.

<https://nationalinterest.org/blog/buzz/dont-sleep-russias-super-fast-avangard-hypersonic-missile-125416>

This Nuclear Bomb Was So Deadly That Russia Was Too Afraid To Test It More Than Once

Matthew Gault

National Interest Blog, February 26, 2020

On a clear day, an airburst at 14,000 feet above ground level would produce a nuclear fireball two miles wide that would be hotter than the surface of the sun, reducing concrete and steel skyscrapers to ashes. Maj. Andrei Durnovtsev, a Soviet air force pilot and commander of a Tu-95 Bear bomber, holds a dubious honor in the history of the Cold War.

Durnovtsev flew the aircraft that dropped the most powerful nuclear bomb ever. It had an explosive force of 50 megatons, or more than 3,000 times more powerful than the Hiroshima weapon. The test project's scientists painted the Bear bomber and its Tu-16 Badger chase plane white to limit heat damage from the bomb's thermal pulse. That's at least what the scientists hoped the paint would do. The bomb also had a parachute to slow its drop, giving both planes time to fly about 30 miles from ground zero before the nuke detonated. This gave Durnovtsev and his comrades a chance to escape.

<https://nationalinterest.org/blog/buzz/nuclear-bomb-was-so-deadly-russia-was-too-afraid-test-it-more-once-126902>

The 1 Huge Problem With Russia's Borei-Class Nuclear Submarines

Mark Episkopos

National Interest Blog, February 26, 2020

Moscow wants the best weapons, but the finest war machines are usually expensive. Can Russia foot the bill? Russia's fourth-generation Borei-class was conceived in the early 1980's as a great leap forward in Russian submarine technology; a new, modern design over its aging Delta and Typhoon predecessors. Armed with nuclear-capable Bulava missiles, the Borei line was meant to guarantee the submarine component of Russia's nuclear triad for decades to come.

Whereas many other Russian modernization efforts involve iterative updates to Soviet-era weapons, the Borei class--or Project 955--represents an entirely new design concept. In fact, the Russian Navy entertained but eventually cancelled its Typhoon modernization project due to cost concerns. In envisioning the next generation of Russian submarines, Russian engineers set out to make the Borei line significantly smaller and lighter than the Typhoon while carrying a more destructive payload. This, they accomplished in spades: Borei is twice as light as Typhoon at 24,000 against 48,000 tons, has a significantly smaller beam (ship width), and travels at a marginally faster speed.

<https://nationalinterest.org/blog/buzz/1-huge-problem-russias-borei-class-nuclear-submarines-127137>

Check Out Russia's Newest Attack Submarine

David Axe

National Interest Blog, February 28, 2020

We've gotten a glimpse of what could be Russia's next attack submarine. A Russian state-owned T.V. network in December 2019 broadcast a report that includes, in a fleeting shot, what appeared to be an official model of new submarine design. The design in question might be the planned Laika class of nuclear-powered attack submarine. At least that's what H.I. Sutton, an American writer and submarine expert, believes. Sutton has written about Laika at Forbes and Naval News.

"The Laika-class sub has until now been shrouded in secrecy," Sutton explained. "It is generally analogous to the Virginia-class attack submarine in service with the U.S. Navy." Laika could fill a gap in Russia's future undersea force structure. There are 62 submarines of all classes in commission with the Russian navy. Fifty-five are front-line vessels and the rest are test and research vessels.

There are 10 nuclear-powered ballistic-missile submarines, nine nuclear cruise-missile submarines, 14 nuclear attack submarines and 22 conventional attack submarines.

<https://nationalinterest.org/blog/buzz/check-out-russia%E2%80%99s-newest-attack-submarine-127772>

Election Mirage: Why Claims of Russian Meddling Should Be Questioned

David B. Rivkin, and Jr. George Beebe

National Interest Blog, February 28, 2020

What does one do when the country's intelligence leadership is acting, well, not very intelligently? That is the inescapable question prompted by last week's reports that a senior representative of the Office of the Director of National Intelligence (ODNI) told members of the House Permanent Select Committee on Intelligence (HPSCI) in an official briefing that Russia is interfering in the 2020 U.S. presidential election and hopes to see President Donald Trump re-elected.

According to the New York Times account, Trump learned of this briefing only after the fact. And if press reports are accurate, the briefer cited no direct evidence of meddling on Trump's behalf or of Russia's broader intentions regarding U.S. presidential elections. Rather, the case was apparently based on inferences from such inherently ambiguous evidence as Russian hacking of the Ukrainian energy firm Burisma, supposedly done to help Trump dig up dirt on Hunter Biden. Such inferences were evidently reinforced by an assessment, lacking in analytical merit but redolent with politics, that the Kremlin would somehow naturally favor Trump over other 2020 presidential candidates.

<https://nationalinterest.org/feature/election-mirage-why-claims-russian-meddling-should-be-questioned-127992>

West Asia

Iran

A launch failure and a sign of troubles to come

Hafed Al-ghwell

Arab News, February 16, 2020

Last week, Iran's rush to launch a satellite into orbit ultimately failed — the latest in a string of mishaps that have prevented the country from significantly upgrading its ballistic missile capabilities after at least three other attempts, or so Washington thinks. The latest attempt faltered after a Simorgh (Phoenix) rocket could not reach the requisite speed to put the Zafar 1 (Victory) satellite into space. This dogged pursuit to improve its extra-terrestrial capabilities despite a bevy of sanctions, international isolation and mounting domestic woes is certainly troubling, continued uranium enrichment (and regional warmongering) notwithstanding.

Without a check on these aggressive escalations, the region faces a dark future, where even a revitalized JCPOA or a conciliatory post-Trump global community will lack decisive means to scale back Tehran's ambitions. The country managed to place a satellite in orbit in 2009, 2011 and 2012 —

leading experts to conclude that these latest failures are “trial and error” attempts, with the expectation that they will eventually “get it right”. Tehran dismisses such concerns, with Information and Communications Technology Minister Mohammad Javad Azari Jahromi insisting that the satellite was for communication purposes and that the launch failure was not a setback but an opportunity for additional launches. However, those comments fall flat considering that the launch of the satellite was meant to coincide with February’s anniversary of the 1979 Islamic Revolution.

<https://www.arabnews.com/node/1628286>

Inaction will only feed malign Iranian behavior

Dr. Majid Rafizadeh

Arab News, February 16, 2020

There are still some politicians, scholars and policy analysts who believe that imposing pressure and sanctions is not the answer to Iran’s aggressive policies and military adventurism in the Middle East. It seems that they have forgotten recent history, where the policy of inaction and appeasement was tested during the eight years of the Obama administration. Five members of the UN Security Council lifted all four rounds of crippling sanctions that took decades to impose on the Islamic Republic. Former President Barack Obama revoked four previous executive orders against Iran — removing US unilateral sanctions and freeing up Iran’s assets, which were estimated to be worth between \$50 billion to \$150 billion.

The US Department of Treasury removed nearly 400 Iranian citizens from the blocked list, freed up their assets and permitted them to do business with the US. The US gave Iran the ability to re-enter the global financial system and export and import many commodities that were previously banned.

<https://www.arabnews.com/node/1628591>

Turkey

Turkey versus Russia and the U.S.: decoding the conundrum

Cengiz Aktar

Ahval, February 16, 2020

It is not easy to understand the unusual triangular relationship between Russia and the United States, on the one hand, and Turkey, on the other. Until Nov. 25, 2015, the day Turkish army deliberately shut down a Russian reconnaissance jet over Syrian territory; Turkey was a classical NATO ally and reliable satellite of the post-WWII strategic architecture. As of that day, things started to change dramatically, culminating in an association between Turkey and Russia that had no historical precedent.

Indeed the Ottoman and Tsarist empires were staunch enemies, the same is valid for modern day Turkey with the Soviet Union and Russia. But although Russia has extensive knowledge of the Turkic world, the same does not apply to Turkey, where neither its academia nor the foreign service possesses adequate institutional memory about the Russian world. The downing of the aircraft, and a year later the public assassination of the Russian ambassador to Turkey, has been exploited very skilfully by Moscow to make Ankara indirectly pay for its deadly deed by getting slowly but surely

in its sphere of influence. To pull NATO member Turkey in, Moscow exploited the ruling elite's deep anti-Atlanticism and President Recep Tayyip Erdoğan's fear of being overthrown, especially after the engineered coup d'état of July 15, 2016, for which Moscow possesses all critical intelligence.

<https://ahvalnews.com/turkey-russia-us/turkey-versus-russia-and-us-decoding-conundrum>

Israel

Israel Has a Secret Nuclear Weapons Program (Well, Maybe Not-So-Secret)

Kyle Mizokami

National Interest blog, February 16, 2020

The establishment of a nuclear triad demonstrates how seriously Israel takes the idea of nuclear deterrence. The country will likely not declare itself a nuclear power any time soon; ambiguity over ownership of nukes has served the country very well. In a private email leaked to the public in September of 2016, former secretary of state and retired U.S. Army general Colin Powell alluded to Israel having an arsenal of "200 nuclear weapons." While this number appears to be an exaggeration, there is no doubt that Israel does have a small but powerful nuclear stockpile, spread out among its armed forces. Israeli nuclear weapons guard against everything from defeat in conventional warfare to serving to deter hostile states from launching nuclear, chemical and biological warfare attacks against the tiny country. Regardless, the goal is the same: to prevent the destruction of the Jewish state.

<https://nationalinterest.org/blog/buzz/israel-has-secret-nuclear-weapons-program-well-maybe-not-so-secret-123936>

Israel's Air Force And Army Get All The Fame, But Its Navy Has Underwater Super Weapons

Sebastien Roblin

National Interest Blog, February 19, 2020

Unofficially, Tel Aviv wants everyone to know it has them, and doesn't hesitate to make thinly-veiled references to its willingness to use them if confronted by an existential threat. Estimates on the size of Tel Aviv's nuclear stockpile range from 80 to 300 nuclear weapons, the latter number exceeding China's arsenal.

Originally, Israel's nuclear forces relied on air-dropped nuclear bombs and Jericho ballistic missiles. For example, when Egyptian and Syrian armies attacked Israel during the 1973 Yom Kippur War, a squadron of eight Israeli F-4 Phantom jets loaded with nuclear bombs was placed on alert by Prime Minister Golda Meir, ready to unleash nuclear bombs on Cairo and Damascus should the Arab armies break through.

<https://nationalinterest.org/blog/buzz/israels-air-force-and-army-get-all-fame-its-navy-has-underwater-super-weapons-125191>

Israel's Navy Is A Nuclear Power

Robert Beckhusen

National Interest Online, February 26, 2020

Israel's navy is the smallest branch of the Israel Defense Forces. However, the need to protect Israel's recently-established gas rigs in the Mediterranean against missile and terrorist attacks presents the Israeli navy with a profound challenge. In addition, the Israeli submarine fleet is of tremendous strategic importance—particularly regarding a possible Iranian military nuclear program. Thus, Israel's navy plays a vital role for Jerusalem's security. Almost 10,000 men and women serve in Israel's navy under the command of Maj. Gen. Eli Sharvit. Traditionally, coastal security is one of the naval forces' primary tasks. This includes protecting Israeli waters from enemy infiltration and preventing the smuggling of weapons.

<https://nationalinterest.org/blog/buzz/israels-navy-nuclear-power-126987>

Could Israel Become a Nuclear Weapons Superpower?

Robert Farley

National Interest Blog, February 29, 2020

Israel has most of what it needs from the United States; in several areas, the technical capabilities of the IDF exceed those of the U.S. military. With only a few notable exceptions, Israel can buy whatever it wants from the United States, generally on very generous terms associated with U.S. aid packages. Notwithstanding the availability of weapons, however, Israel must still make careful decisions regarding how to spend money. Consequently, Israel can't have quite everything that it would like, despite the continued good relationship with the United States and its arms industry.

<https://nationalinterest.org/blog/buzz/could-israel-become-nuclear-weapons-superpower-128277>

East Asia

North Korea

Urgent action needed to reduce risk of nuclear war

John Carlson

Korea Times, February 19, 2020

Most people believe the risk of nuclear war ended with the Cold War in 1991. Unfortunately they are wrong. If anything, this risk is even greater today. First, the U.S. and Russia have continued dangerous practices from the Cold War, particularly keeping nuclear weapons on high alert, known as "launch on warning" status. To avoid losing their nuclear weapons through a surprise attack, each country will launch its missiles immediately if it believes the other has initiated an attack. This is inherently dangerous. In the case of an apparent attack, the U.S. or Russian president has only 20 minutes to decide whether to launch missiles in retaliation. Obviously mistakes can be made.

Historically there have been several false alarms, "close calls" where catastrophe was averted only by cool heads and good luck. We cannot rely on good luck lasting forever.

Factors contributing to an increased risk of nuclear war include: The number of countries with nuclear weapons has grown and some are expanding their arsenals; the end of arms control agreements; the introduction of new types of nuclear weapons; and changing attitudes toward the possible use of nuclear weapons. Perhaps most dangerous of all is the lack of engagement on risk reduction measures among the nuclear armed countries. While the U.S. and Russia, and now North Korea, get most attention, there are now nine countries with nuclear weapons. Of particular concern are India and Pakistan, where tensions remain at dangerous levels. Nuclear war between these two would have devastating consequences not only for them but globally through a "nuclear winter" (the impact of dust and soot on the climate). It should be a priority to help India and Pakistan establish mutual risk reduction arrangements.

http://www.koreatimes.co.kr/www/opinion/2020/02/137_283696.html

Arms race that no one can win

Olivia Alperstein

Korea Times, February 18, 2020

Welcome to the 21st century nuclear arms race. Once again, we're teetering on the brink of nuclear conflict instead of taking critical steps toward de-escalation and disarmament. If it feels like we're in the middle of a wacky James Bond movie plot, that's not far off. Any progress we were making toward nuclear safety is being rapidly, systematically and recklessly dismantled by the Trump administration. Current tensions with Iran, particularly after the assassination of top Iranian military commander Qassem Soleimani, have heightened not just the risk of regional conflict but also of global nuclear war.

In his State of the Union address on Feb. 4, President Donald Trump declared that Iran "must abandon its pursuit of nuclear weapons," without acknowledging that he unilaterally withdrew the United States from an international treaty, which was successfully doing just that. It's vital that the United States get back to the negotiating table and re-enter the Iran deal. Trump also pulled out of the landmark Intermediate-Range Nuclear Forces Treaty between the United States and Russia. This treaty led to the elimination of nearly 2,700 intermediate-range missiles and helped the two countries make tangible progress in stabilization and disarmament efforts. Currently, the most important arms control treaty the United States is still a party to is the New Strategic Arms Reduction Treaty, also known as New START. The treaty is set to expire just a year from now, in February 2021.

http://www.koreatimes.co.kr/www/nation/2020/02/113_283650.html

Think Tanks

India's quest to normalise its nuclear status

Ramesh Thakur

Australian Strategic Policy Institute, February 18, 2020

Among the big changes in the global strategic landscape since the Nuclear Non-Proliferation Treaty came into force in 1970 is the expansion of the nuclear club from five to nine. All five nuclear powers at that time were recognised as nuclear-weapon states by the NPT. Since then, four more

countries have gate-crashed the exclusive nuclear club: Israel, India, Pakistan and North Korea. The NPT is supplemented by several other treaties and arrangements that together constitute the broader non-proliferation regime. All are designed to reinforce the NPT standards. On the one hand, part of the NPT bargain is to help non-nuclear-weapon states in the peaceful applications of nuclear energy. On the other, the treaty prohibits any form of assistance to non-nuclear states in getting the bomb. Accordingly, assistance with peaceful applications of nuclear energy is subject to safeguards, and increasingly stringent export controls were instituted to eliminate the risk of nuclear trade being diverted into weapons programs.

Many would prefer a criteria-based decision rather than make yet another exception for India as a de facto US security partner in the China containment strategy. Unfortunately, the NSG's politicisation means countries—applicants, backers and opponents—put a greater premium on its status value than its functional goals. In practice, the most common criterion has been bilateral relations based on geopolitical calculations. But in truth, the push for and receptivity to India's membership have been driven largely by India's growing salience as an international actor. India's rising global profile and diplomatic weight gave Washington some but not sufficient leverage in the campaign for NSG membership. But this means China, which is also Pakistan's nuclear patron, remains opposed to India's application and the consensus requirement has enabled China to derail India's bid.

<https://www.aspistrategist.org.au/indias-quest-to-normalise-its-nuclear-status/>

Five Ways to Start a Nuclear War

Union of Concerned Scientists, February 18, 2020

Physicist David Wright discusses the nuclear weapons policies and scenarios that threaten our safety, and how to mitigate those risks.

<https://www.ucsusa.org/resources/five-ways-start-nuclear-war>

Russia's shifting views of multilateral nuclear arms control with China

Steven Pifer

Brookings, February 19, 2020

Over the past year, President Donald Trump and administration officials have made clear the importance they attach to engaging China in nuclear arms control along with Russia. The Chinese have made equally clear their disinterest in participating. Moscow, meanwhile, has stepped back from its position that the next round of nuclear arms reductions should be multilateral rather than a continuation of the bilateral process that produced the New Strategic Arms Reduction Treaty (New START) in 2010. Russian leaders are not opposed to bringing in China — to the contrary, they'd undoubtedly welcome it. But Moscow seems prepared to leave the heavy lifting to the United States. Press reports last year indicated that Trump had expressed interest in doing more on arms control than extending New START.

The president in April reportedly ordered development of an approach to involve China and Russia in a new negotiation to cover not just deployed strategic nuclear arms (covered by New START) but other nuclear weapons as well. Getting China into a nuclear arms control negotiation, while desirable,

is unrealistic. The U.S. and Russian nuclear arsenals are each more than an order of magnitude larger than China's. The Federation of American Scientists puts the U.S. and Russian arsenals at 3,800 and 4,490 nuclear weapons respectively, as opposed to China's 290. Beijing has long taken the position that it will not participate in negotiations until that gap narrows.

<https://www.brookings.edu/blog/order-from-chaos/2020/02/19/russias-shifting-views-of-multilateral-nuclear-arms-control-with-china/>

India is building nuclear submarines and ICBMs. That's a \$14 billion mistake

Frank O'Donnell and Alexander K. Bollfrass

Bulletin of Atomic Scientists, February 26, 2020

Despite struggling to modernize outdated conventional forces with the current defense budget, India is investing in two new nuclear platforms. The first is the Arihant-class submarine fleet, the second the mobile Agni-V intercontinental ballistic missile. Together, their combined price tag will top \$14 billion. Is this money well spent? Pessimism about its strategic balance with China is driving India's nuclear arms procurement. An altercation between troops of both countries in summer 2017, which came to be known colloquially as the Doklam crisis, stimulated introspection among Indian officials and experts about the future of the relationship with China. Politically, the Indian strategic community has largely concluded that the peaceful resolution of border disputes has become less likely, forecasting more rivalry than cooperation.

Even India's optimists, a minority, anticipate that China will succeed in staying ahead of India's strategic capabilities. Despite the hand wringing, India's nuclear and conventional position with respect to both China and Pakistan is in fact robust. India has key under-appreciated conventional advantages on the ground and in the air that assure it against Chinese threats and attacks. Moreover, its nuclear-armed missiles already have sufficient range to credibly hold major Chinese cities at risk. As a result, India has an opportunity to pursue greater nuclear transparency and restraint with both of its nuclear-armed neighbors. Instead of investing in new nuclear weapons platforms that do little to strengthen deterrence against China, New Delhi should improve the survivability of existing forces and fill the gap in global arms control leadership with an initiative on restraint and transparency.

<https://thebulletin.org/2020/02/india-is-building-nuclear-submarines-and-icbms-thats-a-14-billion-mistake/>

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