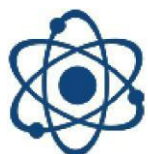


June 17, 2020

SYLLOGE ON CHINA

Focus: Nuclear, Space, Missiles and other Security Issues

An Initiative by Indian Pugwash Society and Centre for
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INDIAN PUGWASH SOCIETY



INSTITUTE FOR DEFENCE
STUDIES & ANALYSES
रक्षा अध्ययन एवं विश्लेषण संस्थान

Prepared by:
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Chinese military demands Indian border troops stop infringing and provocative actions

China Military Online, June 16, 2020

On the evening of June 15, in the Galvan Valley area on the China-India border, the Indian military, reneging on its commitments, crossed the Line of Actual Control (LAC) once again and deliberately launched provocative attacks, which caused violent physical clashes between the two sides and casualties, said a Chinese military spokesperson on Tuesday. Senior Colonel Zhang Shuili, spokesperson for the Western Theater Command of the Chinese People's Liberation Army, made a statement on Tuesday over the clashes between Chinese and Indian border troops in the Galvan Valley area.

The sovereignty over the Galvan Valley area has always belonged to China, said Sen. Col. Zhang in the statement. He pointed out that the Indian border troops reneged on their commitments, seriously violated agreements and protocols between the two countries on border issues and the consensus reached at the commander-level talks between the two militaries, and severely undermined the Sino-Indian military relations and the feelings of the two peoples. "We demand the Indian military strictly restrain its frontline troops, immediately stop all infringing and provocative actions, work with the Chinese side towards the same goal, and return to the right track of resolving differences through dialogue and talks," Sen. Col. Zhang stressed in the statement.

http://eng.chinamil.com.cn/view/2020-06/16/content_9836241.htm

Chinese Ministry of National Defense slams U.S. military plane flying over Taiwan

Ministry of National Defense, June 15, 2020

On Monday afternoon, a Chinese defense spokesperson slammed the flight of a U.S. C-40 military transport aircraft over Taiwan without China's permission on June 9, calling it an extremely wrong and dangerous action. In response to the U.S. military aircraft flying across Taiwan, Senior Colonel Ren Guoqiang, spokesperson for the Ministry of National Defense (MND) of the People's Republic of China (PRC), said that the U.S. action grossly violated China's territorial sovereignty and seriously undermined peace and stability of cross-Straits relations, which was extremely wrong and dangerous. "The Chinese side urges the U.S. side to abide by the one-China policy and the three China-U.S. Joint Communiques' stipulations, and stop all acts that provoke China's national sovereignty and territorial integrity," said Ren Guoqiang, adding that Taiwan is an integral part of China and there is no way out for "using Taiwan to contain China" and "attempt to raise status by bonding with foreign forces".

The Chinese People's Liberation Army (PLA) has firm will, full confidence, and sufficient capability to safeguard national sovereignty and territorial integrity, protect the common interests of compatriots on both sides of the strait, maintain regional peace and stability in the Taiwan Straits, and resolutely thwart any attempt to create so-called "one China, one Taiwan", Ren stressed.

http://eng.mod.gov.cn/news/2020-06/15/content_4866749.htm

China's Y-20 cargo plane sends Victory Day paraders to Moscow in first Russia visit

Guo Yuandan and Liu Xuanzun

Global Times, June 15, 2020

China's domestically developed Y-20 large transport aircraft on Saturday landed in Russian capital Moscow for the first time, sending Chinese People's Liberation Army (PLA) honor guard members to participate in the Russian Victory Day parade scheduled for June 24 despite the seriousness of the COVID-19 situation in the country. This long-distance flight not only demonstrated the

aircraft's technical capability, but also displayed the high-level military cooperation between China and Russia, experts said. Carrying 105 members of the PLA honor guard, the Y-20 cargo plane arrived at Sheremetyevo International Airport in Moscow, China Central Television (CCTV) reported on Sunday.

At the invitation of the Russian side, the PLA soldiers will join the Russian Victory Day parade at Moscow's Red Square scheduled for June 24, the report said. The Y-20's first Russia visit showed that it has achieved full mission capability in terms of both support and performance, and this type of aircraft will appear in public more often and conduct different missions in the future, Wang Ya'nan, chief editor of Aerospace Knowledge magazine, told the Global Times on Monday. China previously used Il-76s as its main type of large transport aircraft, importing them from Russia in the early 1990s. The Y-20's first visit to Russia this time marked a new start, analysts said. The Y-20 travelled a long distance to Russia, prompting Wang to say the Chinese cargo plane has sufficient endurance to conduct cross-regional military missions.

"The aircraft's long range means it can make a direct flight from Beijing to Moscow, but normally, this kind of long-distance travel will require an intermediate stop for logistical support. This is the usual approach between China and Russia when it comes to military cargo plane flights," he said. Judging from the CCTV report, the Y-20 plane that visited Russia, which has the serial number 20041, was also one of the Y-20s that made the first flight to Wuhan, Central China's Hubei Province, on February 13 and later again on February 17 to support the COVID-19 epidemic fight there.

<https://www.globaltimes.cn/content/1191617.shtml>

PLA Xizang Military Command holds coordinated exercise in plateau region

Ren Feng and He Penglei

China Military Online, June 15, 2020

An infantry battalion of a brigade under the PLA Xizang Military Command organized infantry and tank coordinated exercise at the elevation of more than 4,700 meters, to comprehensively test the troops' coordination and rapid response capacity. This exercise focused on the subjects including infantry and tank offensive formation, enemy firepower strike, initiation of attack, defensive counter-impact, in-depth attack, etc. During the drill, the battalion put emphases on combining the tank's fierce firepower, strong protection and fast maneuverability with the infantry's flexible maneuverability and strong perception. It has given prominence to such events as long-distance strike by tank at enemy's forward firepower points, infantry-guided maneuver of tank, tank-guided marching of infantry, fast maneuver of infantry facilitated by tanks, etc., which highlighted the coordination and mutual support capacity between the infantry and the tanks.

The participating troops included ground forces, battlefield service and airborne penetration forces. They have been brought to a completely unfamiliar high-altitude area, which set a severe test for the coordination between the commanders and different arms. After the drill, the battalion summed up the experience for the actual plateau combat training, analyzed the exposed problems and deficiencies, and formed a plan that met the actual combat requirements of the plateau environment for better combat readiness.

http://eng.chinamil.com.cn/view/2020-06/15/content_9835528.htm

US navy patrols Indo-Pacific for first time in three years, as US-China tensions deepen

South China Morning Post, June 12, 2020

For the first time in nearly three years, three US aircraft carriers are patrolling the Indo-Pacific waters, a massive show of naval force in a region roiled by spiking tensions between the United States and China and a sign that the US Navy has bounced back from the worst days of the coronavirus outbreak. The unusual simultaneous appearance of the three warships, accompanied by Navy cruisers, destroyers, fighter jets and other aircraft, comes as the US escalates criticism of Beijing's response to the coronavirus, its moves to impose greater control over Hong Kong and its campaign to militarise human-made islands in the South China Sea.

"There have been some indications in Chinese writings that the US was hit hard by Covid-19, that military preparedness was low, so perhaps there is an effort by the United States to signal China that it should not miscalculate," said Bonnie Glaser, director of the China Power Project at the Centre for Strategic and International Studies. "The Chinese will definitely portray this as an example of US provocations, and as evidence that the US is a source of instability in the region," she added.

<https://www.scmp.com/news/asia/diplomacy/article/3088776/us-navy-patrols-indo-pacific-first-time-three-years-us-china>

PLA Su-30 fighter jets edge near Taiwan as US military aircraft flies through the island

Liu Xuanzun Global Times. June 9, 2020

The island of Taiwan's defense authority said fighter jets of the Chinese People's Liberation Army (PLA) approached the island on Tuesday, the day a US military aircraft flew over the island that's bound to further raise cross-Straits tensions following a series of US arms sales to the island, and a US warship transit through the Taiwan Straits. The US warplane's rare flight over Taiwan showed the increasing collaboration between the US military and Taiwan secessionists, and the Chinese mainland's fighter jet sorties and approaches sent them a powerful warning and demonstrated how much the PLA was determined and prepared for war, Chinese mainland experts said on Tuesday.

A US C-40 military transport aircraft was identified flying over the west coastline of Taiwan on Tuesday morning, Taiwan media reported, citing the island's defense authority. Taiwan's defense authority later on Tuesday said the US aircraft's flight over the island "was approved and it did not land," Taiwan media reported. Around the same time on Tuesday morning, multiple PLA Su-30 fighter jets on Tuesday morning briefly entered the southwestern "airspace" of Taiwan island, according to a separate report by Taiwan media, also citing the island's defense authority.

<http://www.globaltimes.cn/content/1191065.shtml>

China puts rising star in command of forces in border face-off against India

Minnie Chan

South China Morning Post, June 9, 2020

A rising star of the People's Liberation Army has been sent to oversee the ground forces of the Western Theatre Command, where tensions are rising between China and India over border disputes. New commander Xu Qiling is younger than his Western Theatre Command predecessor and has experience in four of the PLA's five theatre commands. As tensions rise over border disputes, both countries build up troops, weapons and training

Xu Qiling, former ground force commander of the Eastern Theatre Command, swapped posts with his counterpart He Weidong in the west, overseeing border areas in the Xinjiang and Tibet autonomous regions since last month, according to a report posted on the Western Theatre Command's WeChat social media account. "As tensions with India are escalating over border

disputes, the Western Theatre Command needs a younger commander to lead frontier soldiers and officers in this current sensitive period,” a military insider, who requested anonymity, told the South China Morning Post.

“Xu is 57 years old, five years younger than his predecessor, He. The working environment in the Western high altitude is very tough and even young people age prematurely there.” The insider said that after working for four years in the Tibetan Plateau, 63-year-old He’s new position in the Eastern Theatre Command was a more comfortable job before his formal retirement. The latest tensions between China and India have further fuelled both countries’ build-up of troops and weapons to assert territorial claims at their disputed border areas in the Himalayas. China’s People’s Liberation Army (PLA) has stepped up advanced arms testing and training at high altitude.

<https://www.scmp.com/news/china/military/article/3088099/china-puts-rising-star-command-forces-border-face-against-india>

Militia's combat-led training fast-tracked to enhance support capability

Xu Xiaoping and Chen Jing

China Military Online, June 9, 2020

The Huaihua military sub-command in Central China’s Hunan province recently organized a combat-led training for a specialized militia detachment. The militia detachment, which is established for camouflage protection, mainly provides logistics support for troops of certain service. “The military sub-command and our detachment jointly explored a string of practical techniques and tactics such as camouflaged hiding, sending false signals, and deception and obstruction, to reduce the exposure of troops on the field,” said Xie Hong, a battalion commander responsible for the training. Xie also noted that such joint training and exercise has significantly improved the militia’s support capability in battles and turned militia detachments into an important part in fortifying the troops’ combat force.

According to the deployments of superior military unit, the Huaihua military sub-command has formed 13 specialized militia detachments in recent years, concentrating on different fields of anti-chemical rescue, medical aid, communications support, security alert, etc. Based on their operational characteristics, the military sub-command has carried out joint exercises and training to maximize their support capability for real combats.

http://eng.chinamil.com.cn/view/2020-06/09/content_9830937.htm

China mobilises thousands of troops, armoured vehicles near border with India

Kinling Lo

South China Morning Post, June 8, 2020

China has mobilised thousands of paratroopers, armoured vehicles and equipment in a military drill, saying they could be deployed “within hours” to the border with India in the Himalayas, where tensions have again flared. The soldiers and armoured vehicles were transported from the central province of Hubei to an unspecified location in China’s northwest plateau, thousands of kilometres away, in “just a few hours”, according to state media reports over the weekend.

Footage of troops boarding civilian planes and trains in the “manoeuvre operation” was aired on state broadcaster CCTV on Saturday, the same day top generals from China and India held talks in Moldo, on the Chinese side of the unmarked boundary known as the Line of Actual Control. They were trying to defuse a stand-off that began in early May, with border troops engaging in fist fights and stone-throwing in the Galwan River valley between Ladakh, in Indian-administered Kashmir,

and Chinese-administered Aksai China. Major Colonel Mao Lei, head of a PLA Air Force brigade training department that led the operation in the northwest, said it had made “significant breakthroughs” in terms of the scale of mobilised troops and how they were transported.

“[Using civilian transport] substantially expanded our means of transporting forces and increased efficiency in manoeuvring an entire organisation of troops,” Mao told CCTV.

The report did not give their location, but an article published in state tabloid Global Times on Sunday directly linked the People’s Liberation Army drill with the border tensions.

<https://www.scmp.com/news/china/military/article/3088093/china-mobilises-thousands-troops-armoured-vehicles-near-border>

China tests inter-satellite links of BeiDou navigation system

Xinhua, June 8, 2020

The Xi'an Satellite Control Center's tests have shown links among the satellites of the BeiDou Navigation Satellite System (BDS) are stable to ensure that the constellation can be completed as scheduled. The tests showed that the inter-satellite links meet the demands of the construction of the global system, said Yuan Yong, a senior engineer from the control center. He said that the tests, lasting for more than two years, covered 29 satellites of the BDS-3 system.

Since the ground stations in China cannot continuously track and control all the BDS satellites, the inter-satellite links help establish communication among them. Instructions sent by the control center to one satellite in the constellation is transmitted to all. China began to develop its navigation system, named after the Chinese term for the Big Dipper constellation, in the 1990s and started serving the Asia-Pacific Region in 2012. Currently, all the first generation BDS-1 satellites have ended operations, and a total of 54 BDS-2 and BDS-3 satellites have been sent to space. The BDS-3 system will consist of 30 satellites. China aims to launch the last BDS-3 satellite in June to complete the construction of the constellation and provide high-precision and reliable positioning, navigation and timing services around the world.

http://www.xinhuanet.com/english/2020-06/08/c_139124138.htm

China, Serbia sign memorandum on space technology

Xinhua, June 6, 2020

China and Serbia on Friday signed a memorandum on space technology which aims, among other things, to put the Serbian national flag on co-designed spacecraft in the future. The memorandum was signed by Zhang Kejian, director of the China National Space Administration, and Nenad Popovic, Serbian minister in charge of innovation and technological development, via a video conference. Zhang said the memorandum is in the common interests of both countries, adding that as many scientists as possible will engage in joint space projects.

"Our goal is to put the flag of Serbia on the spacecraft that we will jointly design," he announced. Popovic noted that the space partnership will have an immense value for Serbia, saying it will help realize the country's strategic national projects. Popovic said Chinese partners are willing to share their knowledge and experience in space technology with Serbia. "We deeply respect the friendship between our two countries, and we wish for the document signed today to bond China and Serbia in friendship and economic development permanently," he said. "I am sure that our upcoming projects will pave the way for our joint vision." According to the Serbian government, the document envisages the "improvement of bilateral cooperation between Serbia and China in the development and use of space technology, satellite systems and the Earth Observing System, with

applications in the field of smart agriculture, telecommunications, ecosystems, remote sensing systems and geolocation positioning."

http://www.xinhuanet.com/english/2020-06/06/c_139117562.htm

China-India dispute highlights both sides' growing military presence at border

Minnie Chan

Published: 11:49am, 4 Jun, 2020

Deployment of Chinese advanced weapon systems is designed to show India the PLA's capability, expert says. The latest tensions between China and India have further fuelled both countries' build-up of troops and weapons to assert territorial claims at their disputed border areas, with China's People's Liberation Army (PLA) stepping up advanced arms testing and training at high altitude. There has been no official confirmation of the numbers of troops each nation has deployed, but reports have suggested that the PLA has sent multiple advanced weapon systems and refitted fighter jets for operation in high altitude areas of the Tibetan plateau.

The Indian army, too, has moved several battalions from an infantry division usually based in the Ladakh city of Leh, near the border, to "operational alert areas" along the frontier, and reinforcement troops have been brought in. Hong Kong-based military expert Liang Guoliang said Beijing had deployed at least nine combined arms brigades – with specialities including mountain infantry, artillery, air defence, aviation, chemical and nuclear, and electronic warfare – to the Tibet Military Region, a PLA district dedicated to border disputes with India.

However, Rajeswari Rajagopalan, a defence analyst from the Observer Research Foundation think tank in New Delhi, said India had fewer than 225,000 troops along the border.

"According to the most recent estimates from experts at MIT [Massachusetts Institute of Technology], China has 230,000 to 250,000 troops in its Western Theatre Command," she said, referring to the PLA joint command that includes Tibet and Xinjiang.

"It should be noted that a lot of those Indian forces are not facing China, and a significant number of them are for counter-insurgency purposes. "The Indian troops are not actually on the border, and India faces significant difficulties in getting forces to the border because of the mountainous terrain."

Liang said there were usually fewer than 40,000 Chinese army troops at the border, but reinforcements could be sent from the neighbouring provinces of Qinghai and Gansu, or even Xinjiang and Sichuan as required. Rajeev Ranjan Chaturvedy, a Delhi-based defence commentator and author of *The Geopolitics of Chinese Access Diplomacy*, said the friction between the two countries stemmed from India's suspicion about China's increasing infrastructure investment near the disputed borders. "Chinese infrastructure is bigger and better. As China develops and continuously improves its strategic access, it wants others not to do so," he said. "However, India is determined to improve accessibility to border areas and it does not need approval from Beijing to develop its own border infrastructure."

<https://www.scmp.com/news/china/military/article/3087494/china-india-dispute-highlights-both-sides-growing-military>

China's J-20 fighter jet has 'beast mode' for arms like F-35: reports

Liu Xuanzun

Global Times, June 3, 2020

China's J-20 fighter jet has been spotted equipped with pylon adapters under its wings, indicating the stealth aircraft may also be able to enter a "beast mode" like the US' F-35 fighter jet if needed by giving up some stealth capability in exchange for larger weapons loads, reports said. A J-20 prototype taking a test flight had two external pylon adapters, one under each side of its wings, and could carry a total of four extra missiles, Shanghai-based news website eastday.com reported on Monday, citing a recent photo widely circulated on Chinese social media. Judging by a performance flight at Airshow China 2018, a single J-20 can carry at least four PL-15 missiles in its main weapon bay and two PL-10 short-range combat missiles in its side weapon bays, when not using external adapters.

This is similar to the US' F-35 fighter jet, which has a "stealth mode" that can only carry a small amount of internal ordnance and a "beast mode" that can carry a lot more internal and external ordnance, the eastday.com report said. Stealth aircraft can use "stealth mode" to seize aerial superiority, and once the sky is clear and safe, they can ditch stealth and switch to "beast mode" by carrying more munitions via external adapters and launch extended attacks, the report said.

<http://www.globaltimes.cn/content/1190446.shtml>

Mission in July to place rover on Mars' surface

Zhao Lei

China Daily, June 3, 2020

China plans to launch a Long March 5 carrier rocket in July to send a spacecraft toward Mars that will land a rover on the red planet, according to the program's major contractor. China Aerospace Science and Technology Corp, a State-owned space conglomerate, said in a statement sent to China Daily on Tuesday that the Tianwen 1, or Quest for Heavenly Truth 1, mission will fulfill three scientific objectives — orbiting the red planet for comprehensive observation, landing on the Martian surface and sending a rover to roam the landing site. It will conduct scientific investigations on Martian soil, geological structure, environment, atmosphere and water.

If Tianwen 1 succeeds, the mission will become the world's first Mars expedition accomplishing all three goals with one probe, the company said. Tianwen is a long poem by famous ancient poet Qu Yuan of the Kingdom of Chu during the Warring States Period (475-221 BC). He is known for his patriotism and contributions to classical poetry and verses, especially through the poems of the Chu Ci anthology, also known as Songs of Chu. In the mission's first step, a Long March 5, the nation's biggest and most powerful rocket, will blast off at the Wenchang Space Launch Center in Hainan province to transport the robotic probe to the Earth-Mars transfer trajectory before the spacecraft begins its self-propelled flight toward Mars' gravity field. The farthest distance between the Earth and Mars is about 400 million kilometers while the nearest is 55 million km, depending on their position in orbit. A probe will travel about seven months before reaching Mars' atmosphere.

<https://www.chinadaily.com.cn/a/202006/03/WS5ed6df10a310a8b24115a60c.html>

Unmanned helicopter conducts first test flight

Zhao Lei

China Daily, June 2, 2020

China's first unmanned helicopter specifically designed for plateau conditions recently conducted its maiden flight, according to the model's developer, Aviation Industry Corp of China, the country's leading aircraft conglomerate. The AR500C, designed and built by the AVIC Helicopter

Research and Development Institute in Jingdezhen, Jiangxi province, took off for the first time on May 20 at the institute's unmanned aircraft testing base in Jiangxi's Poyang county and stayed in the air for about 20 minutes. It made several maneuvers during the flight and produced "satisfactory data", AVIC said in a statement.

Fang Yonghong, technology director at the institute, said the AR500C has a maximum takeoff weight of 500 kilograms, a flight ceiling of 6,700 meters and a maximum speed of 170 kilometers per hour. It can stay in the air for five hours during an operation and can make autonomous takeoffs and landings. The unmanned rotorcraft can carry additional equipment to carry out various tasks such as electronic jamming, aerial search, fire suppression, maritime surveillance as well as tracing for nuclear or chemical leaks. It can also cooperate with manned aircraft or independently operate in target locking and strike, and supply transportation, he said.

The institute started research and development on the AR500C last year with designers focusing on its engine, rotor wing, aerodynamic modifications and composite materials. The first one was assembled in March and then began to undergo ground tests before the flight test, according to Fang. AVIC developed several types of unmanned helicopters, but they were not specifically designed for plateau deployment.

<https://www.chinadaily.com.cn/a/202006/02/WS5ed5ab35a310a8b24115a179.html>

Report of Chinese scramjet test a challenge to most-advanced missile defence systems

Stephen Chen

South China Morning Post, 31 May, 2020

Engine built for China's classified hypersonic strike weapon hits 600 seconds in ground test

A 10-minute scramjet boost to a weapon could give it a range of over 4,000km at top speed. A scramjet engine built for China's hypersonic strike weapon can run at maximum boost for at least 10 minutes, the longest in the world.

In a ground test in Beijing, Dr Fan Xuejun and colleagues from the Institute of Mechanics fed extremely fast, super-hot air into the engine and took the burn to the maximum for 600 seconds, according to an article posted on the institute's website last month. Since 2013, the United States Air Force X-51A Waverider has held the duration record with a 210-second burn that pushed the plane to Mach 5. In 2016, an Indian test vehicle reached Mach 6 with the engine running for just five seconds. The Chinese breakthrough was based on the "world's first systematic investigation into the effect of hydrocarbon fuel state change on the performance and stability of supersonic combustion", the article said.

The Institute of Mechanics was founded by Dr Hsue-Shen Tsien, the founding father of China's rocket programme and developer of some of the world's earliest hypersonic flight models in the 1940s. The Chinese Academy of Sciences has nominated Fan – a Princeton physics PhD who has worked on the scramjet programme since 2004 – for a national "innovator of the year" prize.

A scramjet is an air-breathing engine for flight that becomes operational at Mach 5 – five times the speed of sound – or above. Traditional jet engines can melt at hypervelocity. The scramjet has no moving parts, like a turbofan, but instead uses the forward motion of a plane to compress air and mix it with high-energy fuel to generate explosive thrust.

<https://www.scmp.com/news/china/science/article/3086804/report-chinese-scramjet-test-challenge-most-advanced-missile>

Chinese-French consortium successfully lifts 1,250-ton base for mega fusion reactor amid pandemic

Global Times, June 29, 2020

A Chinese-French consortium headed by the China National Nuclear Corporation (CNNC) on Thursday successfully lifted a 1,250-ton base for the International Thermonuclear Experimental Reactor (ITER) in the South of France, a staged achievement for China's nuclear sector amid the COVID-19 pandemic. The cryostat base, the first major component installed for the mainstay of the ITER tokamak device - the fusion reactor core - lays a foundation for all important equipment of the tokamak machine, one of the world's most ambitious energy projects. Therefore, the accuracy and progress of the base's installation is considered a "golden point" for ITER, CNNC said in a posting on its official WeChat account.

A controlled fusion device, commonly known as an artificial sun, is intended to secure the world's energy future. The ITER facility, a global big science project second only to the International Space Station in size, is being jointly constructed by China, the EU, India, Japan, South Korea, Russia and the US. Its success is significant to future peaceful utilization of international fusion. Thursday's achievement set a new record for hoisting major equipment in China's nuclear sector, measured by lifted weight and accuracy of installation, per CNNC's WeChat post. The consortium managed to overcome multiple adverse impacts during the pandemic, including those related to staff dispatch and work equipment procurement, to make its breakthrough. The CNNC-headed consortium signed a contract with ITER in September 2019 for the installation of the most important part of the tokamak.

China is also working on its homegrown artificial sun.

The HL-2M Tokamak, the country's next-generation artificial sun, is expected to be put into operation in 2020, the Xinhua News Agency reported in November 2019. "The new apparatus, with a more advanced structure and control mode, is expected to generate plasmas hotter than 200 million degrees Celsius," according to Xinhua, citing Duan Xuru, head of the Southwestern Institute of Physics under CNNC. The device is envisioned to offer key technical support for the nation's participation in the ITER project, as well as for the self-designing and building of fusion machines, he noted.

<http://www.globaltimes.cn/content/1189928.shtml>

China's giant wind tunnel to accelerate development of warplanes

Liu Xuanzun

Global Times, May 27, 2020

China's most advanced fighter jet, J-20, performs at the Chinese Air Force's "open day" event in Under development for more than eight years, China's latest, world-leading wind tunnel is now ready to help develop new warplanes after reaching a milestone on Tuesday by successfully testing and receiving data for an in-development aircraft. With its help, China will be able to develop new warplanes faster and perform better, experts said on Wednesday. The wind tunnel, called FL-62, conducted its first operation on Tuesday by running a test for an undisclosed new aircraft. The operation went smoothly as the flow field generated by the wind tunnel was stable and test data for the aircraft was gathered for the first time, the Aerodynamics Research Institute, under the state-owned Aviation Industry Corporation of China (AVIC), announced in a statement on Tuesday.

This successful test showed the FL-62 wind tunnel was ready to test all types of aircraft and contribute to their development, the statement said. Approved for construction in 2012 and based in Shenyang, Northeast China's Liaoning Province, the 6,620-ton, 17,000-cubic meter machine is

China's first large continuous transonic wind tunnel. It is a fundamental and strategic facility crucial to China's aviation industry, as it will decide the shape of China's future warplanes, according to information AVIC released previously. Compared to previous Chinese wind tunnels, the FL-62 can provide more stable and consistent airflow, resulting in more realistic data gathered from aircraft models tested in the tunnel, a military expert who asked not to be named told the Global Times.

With the data, aircraft developers could optimize the aircraft's aerodynamic design, giving it better performance in speed, range, maneuverability and stealth, the expert said, noting that a more advanced wind tunnel will also likely reduce the development time because the data it generates will be more accurate. An optimized aircraft model would eventually be made into a prototype for test flights. Before its first operation on Tuesday, the FL-62 ran a final test on itself on Sunday, in which data showed it had reached a world-leading standard, the institute's statement on Tuesday said. China is eyeing to develop a next-generation fighter jet by 2035 or earlier, reports in early 2019 quoted Wang Haifeng, a chief architect at AVIC's Chengdu Aircraft Research and Design Institute who also participated in the development of the J-20 and J-10 fighter jets, as saying. The generational standards for fighter jets have been defined mainly by Western countries but not future standards, said J-20's chief designer Yang Wei in a China Central Television program, noting that China will design very different aircraft in the future through true innovation.

<http://www.globaltimes.cn/content/1189685.shtml>

Fuqing-5 nuclear reactor will go into operation this year: CNNC

Global Times, May 26, 2020

The Fuqing-5 nuclear reactor will be put into operation by the end of 2020, according to the China National Nuclear Corporation (CNNC). Located in Fuqing, South China's Fujian Province, the reactor is China's first nuclear power project to use China's own "Hualong One" nuclear reactor. It has a domestically developed third-generation reactor design, with exclusive intellectual property rights. A key tightness function test was completed on May 13, marking an important step in the development of the reactor before the fuel loading process, according to media reports.

The "Hualong One" design was developed by two major state-backed nuclear power giants, CNNC and the China General Nuclear Power Corporation, to meet higher requirements of the latest global nuclear safety standards. The reactor will enter the fuel loading process in mid-year after verification by the National Nuclear Safety Administration, the country's nuclear safety watchdog, and should be able to be put into operation by the end of this year, Gu Jun, general manager of CNNC and a deputy of the National People's Congress, said on Sunday. As of April 2020, China has 47 nuclear power reactors in operation, ranking second in the world, and currently, 15 nuclear power stations are under construction, the most in the world.

<http://www.globaltimes.cn/content/1189540.shtml>

Nuclear tech has wider anti-virus application: political adviser

Cao Siqu

Global Times, May 26, 2020

Nuclear-related irradiation sterilization, which offers high security, conserves energy and is environmentally friendly, has been given full play in the past months during battle against COVID-19, a political adviser said, suggesting this technology be promoted in the medical field and emergency response system. If nuclear power is known as "heavy industry" in the nuclear field, other applications such as irradiation technology are referred to as "light industry," which has had a

low profile. Irradiation sterilization means using cobalt Y rays or high-energy electron beams produced by an accelerator to sterilize objects. As Y rays and electron beams have penetrating power, they can change the microbial structure of items and then achieve sterilization.

In an interview with the Global Times on Tuesday, Luo Qi, a member of the National Committee of the Chinese People's Political Consultative Conference (CPPCC), said that irradiation sterilization has helped to protect medical staff in the COVID-19 epidemic. Luo, an academician of the Chinese Academy of Engineering and Party secretary of the China Academy of Atomic Energy under the China National Nuclear Corp, said sterilization and disinfection of medical supplies such as protective suits is key to winning the battle against the epidemic. Using the traditional sterilization method, it takes seven to 14 days to finish disinfection. However, irradiation sterilization can shorten the time to one day, greatly improving the sterilization effect and efficiency.

In addition, no waste gas or liquid will be generated by this means, which is energy-saving and environmentally friendly. "It is very safe," he said. In response to the COVID-19 outbreak, the corporation is also developing a new technology to prepare radioactive drugs that can eliminate the novel coronavirus, Luo said. This effort "has achieved phased progress." Although the application of nuclear technology in China has reached a certain scale, it still accounts for a relatively low proportion of the economy, which is still far behind developed countries. According to Luo, during this pandemic, more than 40 percent of medical supplies were sterilized with irradiation abroad, compared with 10 percent in China.

<http://www.globaltimes.cn/content/1189586.shtml>