

Nuclear, Missile & Space Digest

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A Fortnightly Newsletter from the MP-IDSA

May 31, 2024

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A. India

US Ambassador Eric Garcetti proposes development of "QUAD satellite" with India-U.S. partnership

The Hindu, May 25, 2024

U.S. Ambassador to India Eric Garcetti has proposed to develop a "QUAD satellite" involving the partnership of India and the U.S.

During his official trip to Bengaluru on Friday, he visited the Indian Space Research Organisation (ISRO) headquarters and met with Chairman S Somanath and discussed the ongoing cooperation between India and the U.S. in the field of space.

In a statement, the space agency said the U.S. Ambassador proposed the development of a "QUAD satellite".

During the meeting, the ISRO chairman pointed to the opportunity to develop advanced detectors and packaging technologies with U.S.-India academic institutions.

He also emphasised the importance of building and standardising docking interfaces across human space programs to enable the utilization of space platforms by other countries and joining hands to build a navigation system on the Moon, either in orbit or on the surface.

<https://www.thehindu.com/news/international/us-ambassador-eric-garcetti-proposes-development-of-quad-satellite-with-india-us-partnership/article68214310.ece>

LVM3 commercialisation is a big step forward, at right time for India, say experts

Indian Express, May 27, 2024

Earlier this month, ISRO's commercial arm, New Space India Limited (NSIL), invited applications from private firms for "end-to-end" manufacturing of Launch Vehicle Mark-III or LVM3, the rocket that was used in the Chandrayaan-2 and Chandrayaan-3 lunar missions.

Previously called GSLV-MkIII, the LVM3 is ISRO's most powerful rocket so far. It can carry up to 4-tonne satellites into the geostationary orbit and up to 8-tonne satellites into the lower earth orbits. According to the offer, ISRO's plan is to have a 14-year collaboration with the selected private entity. The first two years would be the "development phase" for transfer of technology and know-how and then, over the next 12 years, it is envisaged that the private partner would be able to build four to six LVM3 rockets each year.

"With the commercialisation of LVM3, Indian companies will now have a wider array of launch vehicles to offer in the global market. It will increase the country's share in the global market," Lieutenant General Anil Kumar Bhatt (retd), director general, Indian Space Association, told The Indian Express.

<https://indianexpress.com/article/technology/science/lvm3-commercialisation-is-a-big-step-forward-at-right-time-for-india-say-experts-9353776/>

India successfully test-fires Rudra-II air-to-surface missile from Su-30 fighter jet

The Economic Times, May 30, 2024

India achieved a significant milestone in its defence capabilities as it successfully test-fired a RudraM-II air-to-surface missile from a Su-30 fighter jet of the Indian Air Force (IAF) off the coast of Odisha. The defence ministry confirmed that the flight-testing of the missile met all trial objectives, marking a crucial advancement in India's indigenously-developed solid-propelled air-launched missile system.

The RudraM-II missile incorporates state-of-the-art indigenous technologies developed by various DRDO (Defence Research and Development Organisation) laboratories. The successful flight-test, conducted at around 1130 hours on May 29, validated the propulsion system and control and guidance algorithm of the missile. The performance of the missile was confirmed through flight data captured by

range tracking instruments including electro-optical systems, radar, and telemetry stations deployed at various locations, including on-board ships.

<https://economictimes.indiatimes.com/news/defence/india-successfully-test-fires-rudra-ii-air-to-surface-missile-from-su-30-fighter-jet/articleshow/110538191.cms?from=mdr>

Chennai space startup Agnikul Cosmos successfully launches Agnibaan rocket with 3D-printed engine, ISRO hails 'milestone'

Business Today, May 30, 2024

Space startup Agnikul Cosmos on May 30 successfully launched its SOrTeD mission, a single-stage launch vehicle demonstration powered by a semi-cryogenic 3D-printed engine.

The mission, which lasted approximately two minutes, marked a major achievement for the company and the country in the development of indigenous space technology. Initially scheduled to launch on April 7, the launch for the SOrTeD mission was postponed due to technical glitches. It finally took off from India's first private launchpad, ALP-01, located at the Satish Dhawan Space Centre in Sriharikota.

The mission featured a 6.2-meter-tall single-stage launch vehicle with an elliptical nose cone and was equipped with advanced avionics architecture and autopilot software developed in-house.

The Agnilet engine, the world's first single-piece 3D-printed semi-cryogenic rocket engine, powered the vehicle. The mission included a series of precise manoeuvres, including a pitch-over manoeuvre and wind biasing, before splashing down in the Bay of Bengal.

SOrTeD stands for SubOrbital Technological Demonstrator - a single-stage rocket, powered by a semi-cryogenic engine. The Agnibaan rocket can carry up to 300 kg to a 700 km high orbit.

<https://www.businesstoday.in/india/story/space-startup-agnikul-cosmos-successfully-launches->

agnibaan-rocket-with-3d-printed-engine-isro-hails-milestone-431424-2024-05-30

B. Pakistan

Fatah-II rocket system launched

Dawn, May 16, 2024

The Pak-istan Army successfully conducted the test-launch of Fatah-II guided rocket system that has a range of 400 kilometres. The rocket system will significantly upgrade the reach and lethality of the army's conventional arsenal.

The guidance system makes this rocket a precision weapon enhancing its lethality and efficacy, while the trajectory mode and terminal guidance technology enables it to evade the enemy's anti-ballistic missile systems.

Fatah-II is being inducted in the artillery divisions of the army for stand-off and precision engagement of deep target strikes and it would be used in conventional warfare by the Pakistan Army.

The flight test was witnessed by the army chief, senior officers of the three services and scientists and engineers.

The president, prime minister, chairman joint chiefs of staff committee and army chief congratulated the participating troops and scientists for the achievement.

<https://www.dawn.com/news/1833760/fatah-ii-rocket-system-launched>

Espionage: Pakistani hackers target 'Make in India' defence programs

India Today, May 27, 2024

A seemingly innocuous email landed in the inbox of an Indian defence official. At first, his wary eyes dismissed it. But the sender - supposedly a renowned think-tank - held a certain weight. He clicked the mail and the attached PDF document circulated by one Shakeel Bhatti. By the time he realised it was a trap, sensitive data had already been stolen.

And it was not an isolated incident.

As per a report, three public sector defence equipment manufacturers as well as India's security forces have been on the target of an espionage campaign run by a notorious Pakistani hacking group with suspected links to its military.

Transparent Tribe, known as Advanced Persistent Threat (APT) 36 among cybersecurity professionals, has been targeting employees in defence establishment, especially in companies that come under the Defence Ministry's Department of Defence Production.

A cyberattack campaign designed to target personnel of the Indian Air Force (IAF), earlier reported by India Today, was also run by this group.

In its report, Canadian cybersecurity firm BlackBerry said it traced the roots of the online espionage campaign to Pakistani cities and identified Shakeel Bhatti as a group member.

<https://www.indiatoday.in/india/story/pakistani-hacker-make-in-india-defence-programs-espionage-osint-2544545-2024-05-27>

PAKSAT MM1: Nation launches 2nd satellite to bolster internet, communication infrastructure

Dawn, May 30, 2024

Pakistan launched its second communication satellite, PAKSAT MM1, on Thursday, to bolster the country's internet and communication infrastructure. The Pakistan Space and Upper Atmosphere Research Commission (Suparco) had last week announced the launch of the country's multi-mission communication satellite from China's Xichang Satellite Launch Centre today. The country had launched its historic first satellite earlier this month as part of China's Chang'e-6 lunar mission from Hainan.

A statement issued by state-run broadcaster *Pakistan Television* said the satellite would "provide the best internet facilities across Pakistan" and also help improve television broadcasts, cellular

phones and broadband services. It added that the satellite will begin providing service in August.

<https://www.dawn.com/news/1836646>

C. China

China's plan to float nuclear reactors in South China Sea seen as risky

Voice of America, May 16, 2024

The U.S. military has warned that China is moving forward with development of floating nuclear reactors in the South China Sea to bolster its claim to disputed maritime territory. Analysts say the plan to build ships with mobile nuclear power sources would raise tensions with its neighbors and pose risks to the environment. Chinese media reports described the marine nuclear power platforms as small plants inside ships that would act as mobile "power banks" at sea for stationary facilities and other ships.

<https://www.voanews.com/a/china-s-plan-to-float-nuclear-reactors-in-south-china-sea-seenas-risky/7614953.html>

Xi, Putin hold talks, sign joint statement on deepening ties

Global Times, May 16, 2024

Chinese President Xi Jinping held large-group talks with Russian President Vladimir Putin, who is in China on a state visit, at the Great Hall of the People in Beijing. Analysts from both countries said the visit will reinforce and further promote the bilateral strategic ties with high level mutual trust and broad common interests. During the meeting, Xi again extended a warm welcome to Putin for his state visit to China. He pointed out that this is President Putin's first foreign visit after he began his new term as the president. This fully demonstrates the great importance President Putin himself and the Russian government attach to developing China-Russia relations. China highly appreciates this.

<https://www.globaltimes.cn/page/202405/1312473.shtml>

China completes construction of Asia's largest high-altitude rocket test facility

Global Times, May 16, 2024

Asia's largest and China's first vertical high-altitude simulation test stand for rocket engines has successfully completed an ignition test in Beijing, Global Times learned from the developers. The stand was developed and constructed by the Institute 101 of the Sixth Academy of the state-owned space giant China Aerospace Science and Technology Corporation (CASC). The facility can simulate high-altitude conditions for engines in a vacuum environment below one kilopascal and sustain high-altitude simulation tests for thousands of seconds, according to the developers in a statement sent to the Global Times.

<https://www.globaltimes.cn/page/202405/1312452.shtml>

World's first commercial small modular reactor powers up 'brain' in China

CGTN, May 22, 2024

The main control room of China's "Linglong One," the world's first commercial small modular reactor (SMR) on land, officially went into operation in south China's Hainan Province, marking the start of a peak system equipment installation period for the reactor. Just like the brain in the human body, the control room acts as the central nervous system for the plant. As the digital control network is gradually brought online, staff have begun testing equipment, monitoring its operation, and issuing commands from this critical hub. Zhao Long, deputy director of engineering management at China National Nuclear Corporation's (CNNC) Hainan branch, told China Media Group (CMG) that "compared with other nuclear power units, the Linglong One's main control room equipment is more integrated and streamlined, and its safety of various operations has been greatly upgraded."

<https://news.cgtn.com/news/2024-05-22/World-s-first-commercial-small-modular-reactor-powers-up-in-China-1tOh34l59Sw/p.html>

PLA conducts joint military drills surrounding Taiwan island

CGTN, May 23, 2024

The Eastern Theater Command of the Chinese People's Liberation Army (PLA) started joint military drills surrounding the island of Taiwan. The drills are being conducted in the Taiwan Straits, the north, south and east of the island of Taiwan, as well as areas around the islands of Kinmen, Matsu, Wuqiu and Dongyin. Li Xi, spokesperson for the theater command, said military services including the army, navy, air force and rocket force of the theater command are being organized to conduct the joint drills, code-named Joint Sword-2024A.

<https://news.cgtn.com/news/2024-05-23/PLA-conducts-joint-military-drills-surrounding-TaiwanIsland-1tPrPobLHS8/p.html>

Shenzhou-18 crew continues space scientific experiments in China Space Station

Global Times, May 26, 2024

Since entering the China Space Station on April 26, the crew of the Shenzhou-18 manned spaceflight mission has been adjusting themselves to the unique microgravity environment in space while carrying out a range of exciting space scientific experiments, the Global Times has learned from the mission insiders. Among them, the raising of four zebrafish and a bunch colony of hornworts in orbit in what is dubbed the first-ever fish tank ecosystem experiment at the China Space Station is no doubt getting gaining the most attention worldwide.

<https://www.globaltimes.cn/page/202405/1313020.shtml>

Chinese Defence Minister to attend Shangri-La Dialogue in Singapore

Global Times, May 27, 2024

Chinese Defence Minister Dong Jun will attend Shangri-La Dialogue in Singapore and outline China's global security

concept, which experts said on Monday will reaffirm China's commitment to pursuing a path of peaceful development and its willingness to deepen international military cooperation despite Western accusations against China over the Taiwan question and South China Sea issue. Upon invitation, Dong will attend the 21st IISS Shangri-La Dialogue and visit Singapore till June 3, China's Ministry of National Defence announced in a press release. During the event, Dong will deliver a speech on China's global security concept and meet delegation leaders from related countries, the Chinese Defence Ministry said.

<https://www.globaltimes.cn/page/202405/1313080.shtml>

Shenzhou XVIII crew conducts first spacewalk

China Daily, May 28, 2024

The Shenzhou XVIII crew conducted their first spacewalk outside the Tiangong space station, completing several assignments, according to the China Manned Space Agency. The agency said in a news release that mission commander Senior Colonel Ye Guangfu and crew member Lieutenant Colonel Li Guangsu returned to the Wentian science module at 6:58 pm after floating nearly eight and a half hours outside the colossal orbital station. The third crew member, Lieutenant Colonel Li Cong, stayed inside Tiangong to provide support, it said. The Shenzhou XVIII trio, the seventh group of inhabitants of the Chinese space station, were launched on April 25 by a Long March 2F carrier rocket from the Jiuquan Satellite Launch Center in northwestern China and arrived at the Tiangong station the next morning to take over from their peers in the Shenzhou XVII flight.

<https://www.chinadaily.com.cn/a/202405/28/WS6655bdf7a31082fc043c99ff.html>

China raises \$48 billion for semiconductor fund to bolster chip-making capabilities

The Wall Street Journal, May 27, 2024

China raised about \$48 billion in its third instalment of a national semiconductor fund,

aiming to increase its chip-making capabilities in the face of escalating technology competition with the U.S. This latest financing round is the largest for the state-owned National Integrated Circuit Industry Investment Fund, created in 2014. Commonly known as the "Big Fund," it directs state support to build up the country's semiconductor supply chain and has played an outsize role in its development.

<https://www.wsj.com/tech/china-unveils-48-billion-fund-to-bolster-chip-industry-10d7f1ce>

Chinese, Cambodian sailors conduct maritime live-fire drill during "Golden Dragon-2024" joint exercise

China Military Online, May 28, 2024

Chinese and Cambodian sailors participating in the "Golden Dragon 2024" joint exercise conducted a maritime live-fire drill in the waters near Sihanoukville Autonomous Port, Cambodia, on May 27. This marked the first live-fire drill jointly organized by the Chinese naval ship formation and the Royal Cambodian Navy. Under the theme of "joint counter-terrorism operations and humanitarian relief," the drill was based on a scenario where terrorists hijacked a cargo ship in a certain sea area, and focused on such subjects as joint response, formation navigation and search, and armed rescue.

http://eng.chinamil.com.cn/CHINA_209163/TopStories_209189/16311859.html

China's secret spaceplane ejects mysterious object into Earth's orbit. US hunts it down

WION, May 29, 2024

A mysterious object was released into the Earth's orbit by China's top-secret spaceplane nearly 372 miles above the surface. The situation is being monitored by the US Space Force, however, the reason why the mysterious object was ejected on May 24 remains unknown. The mysterious object was first spotted by a Harvard astrophysicist who speculated

that it could be a subsatellite deployment or perhaps a piece of hardware which was released by the spaceplane before its mission ended and it deorbited.

<https://www.wionews.com/science/chinas-secret-spaceplane-ejects-mysterious-object-intoearths-orbit-us-hunts-it-down-726732>

China's Ceres-1 pulls off second successful sea launch, demonstrating increased maturity and enhanced adaptability for commercial use

Global Times, May 29, 2024

China's Ceres-1 solid rocket has successfully conducted a second sea launch afternoon off the coast of East China's Shandong Province. This milestone highlights the commercial rocket's increased maturity and enhanced adaptability, positioning it to meet diverse orbital launch mission requirements for commercial missions, according to space experts. The Ceres-1 sea launch model, developed by Galactic Energy based on the Ceres-1 rocket, is tailored for sea launches. Ceres-1 has a diameter of 1.4 meters, a length of about 20 meters, a mass at take-off of about 33 tons and a liquid propellant upper stage. It can deliver 400 kilograms to LEO or 300 kilograms to a 500-kilometer-altitude sun-synchronous orbit (SSO).

<https://www.globaltimes.cn/page/202405/1313233.shtml>

China delivers advanced communication satellite to Pakistan following successful launch

Global Times, May 30, 2024

China successfully launched a Pakistani communication satellite, codenamed PakSat MM1, on Thursday via a Long March 3B carrier rocket from the Xichang Satellite Launch Center in Southwest China's Sichuan Province. Mission insiders hailed the feat as a landmark in technological cooperation between the two countries. They expect the successful deployment of the satellite to significantly boost Pakistan's comprehensive social and economic development, ensure the security of its

communications, and enhance its aerospace technology and industrial capabilities.

<https://www.globaltimes.cn/page/202405/1313341.shtml>

China grants private aerospace firm license for satellite constellation radio business

Global Times, May 30, 2024

China's Ministry of Industry and Information Technology (MIIT) announced the granting of a license for space radio business via satellite constellation to Beijing-based commercial aerospace firm Guodian Gaoke, after it sent four satellites into orbit. The move will further support the nation's commercial aerospace development. The four satellites are part of Guodian Gaoke's low earth orbit (LEO) Internet-of-things (IoT) satellite constellation Tianqi, which is being used to explore satellite IoT applications in areas such as transport, environmental protection, natural disaster detection and tourism, according to the MIIT.

<https://www.globaltimes.cn/page/202405/1313364.shtml>

China denounces US deployment of mid-range missile system in Philippines

China Daily, May 30, 2024

A Chinese defence spokesperson denounced the deployment of a mid-range missile system by the United States in the Philippines, saying the moves of the two countries have put the whole Asia-Pacific region under the threat of US weaponry. "The Chinese side is highly vigilant against and firmly opposed to this," said spokesperson Wu Qian in response to a media query regarding the deployment of the US Typhon Mid-Range Capability missile system in the Philippines under the excuse of military exercises.

<https://www.chinadailyhk.com/hk/article/584502>

Chinese private rocket firm completes milestone launch

Global Times, May 31, 2024

Chinese private rocket startup Galactic Energy Co announced that its solid-fueled launch vehicle Ceres-1 Y12 has successfully launched into the space, carrying five satellites into an orbit 535 kilometers above the Earth. Marking a milestone moment, the launch is preceded by a sea launch in the Yellow Sea off the coast of East China's Shandong Province, marking the shortest interval between two commercial launches ever achieved by a Chinese private aerospace firm. The event demonstrated the vast potential and broad scope of the Chinese commercial aerospace market, according to a statement sent to the Global Times by Galactic Energy Co.

<https://www.globaltimes.cn/page/202405/1313413.shtml>

D. Russia

Russian Tor air defense systems effective in destroying Storm Shadow missiles – top brass

TASS, May 16, 2024

Teams of Tor-M2 anti-aircraft missile systems of Russia's Battlegroup East shield troops at the first defensive line and successfully destroy Storm Shadow cruise missiles, the Defense Ministry of Russia reported on Thursday.

"Storm Shadow is quite a complex target launched from enemy aircraft. We are warned about that and then we look in that sector, detect and destroy it. The complexity of this target is that it flies at a low altitude. But this [Tor-M2] system excellently copes with low-flying targets," the ministry quoted the team commander with the call sign Balova as saying. Teams of Tor-M2 surface-to-air missile systems of Russia's Battlegroup East shield first-echelon troops and civilian facilities in the south Donetsk direction. Each team has a record of dozens of destroyed targets: unmanned aerial vehicles of various modifications, glide aerial bombs, aircraft and helicopters.

The Tor-M2 anti-aircraft missile system can operate both in the manual mode with the help of operators and automatically. The system controls the designated airspace on its own and independently locks on all aerial targets not identified by the friend-or-foe technology.

<https://tass.com/defense/1788837>

Russia developing thermal imager for Black Sea Fleet to repel night naval drone attacks

TASS, May 16, 2024

Russian specialists are developing a thermal imaging system for the Black Sea Fleet to effectively repel enemy overnight naval drone attacks, CEO of Laboratory PPSH Denis Oslomenko told TASS on Thursday.

"There is a problem with a lack of thermal imaging equipment for gunners because all main attacks by seaborne drones are conducted at night, if you have paid attention to that. We produce thermal imaging sights and sight systems that we are now adapting for the PKM [the upgraded Kalashnikov machine gun], the Kord [machine gun] and for entire small arms that are currently employed against naval drones. They are being engineered in interaction with the Black Sea Fleet," the chief executive said.

The devices help detect targets at a distance of over 1 km. In addition, the watchman on the upper deck should be provided with thermal imaging binoculars to indicate the azimuth of gunboats' movements to the gunners with machine guns at the time when the gunboats are just approaching to effectively repulse such attacks, he elaborated.

<https://tass.com/defense/1788873>

Nuclear drills to be held 'in due time' – Kremlin spokesman

TASS, May 20, 2024

Earlier, the Russian Defense Ministry said that on instructions from President

Vladimir Putin the General Staff had begun preparations for an exercise to be held in the near future involving missile units of the Southern Military District, aircraft and naval ships. Preparations for and procedure of using non-strategic nuclear weapons will be practiced. The exercises are aimed, among other things, at unconditionally ensuring the territorial integrity and sovereignty of Russia in response to provocative statements and threats by certain Western officials.

Putin described the drills to practice the use of non-strategic nuclear weapons as routine work having out of the ordinary. He also said that the exercises would be held in three stages, with Belarus joining Russia in the second stage, since non-strategic nuclear weapons were deployed on its territory.

<https://tass.com/defense/1790715>

Indian Army receives 27,000 Kalashnikov assault rifles – newspaper

TASS, Mat 20, 2024

Indian Army has received 27,000 Kalashnikov AK-203 assault rifles, produced at the Russian-Indian joint venture IRRPL (Indo-Russian Rifles Private Limited) in the Indian central state of Uttar Pradesh, the Hindu newspaper reported citing official sources.

“Everything is on rack after initial delays, and 27,000 rifles have been given to the Army. Another 8,000 will be handed over in the next two weeks,” the publication wrote citing one of the sources.

Indian Prime Minister Narendra Modi announced the creation of a joint Indian-Russian venture to produce Kalashnikov assault rifles in the country in March 2019. Indo-Russian Rifles Private Limited for the production of AK-203 was established at a plant near the city of Korva in the Amethi district of the Indian state of Uttar Pradesh.

<https://tass.com/defense/1790891>

Russian Aerospace Forces destroy two bases of militants in Syria's Homs province

TASS, May 23, 2024

Russia's Aerospace Forces have hit two bases of militants who holed up in the Amour mountain range area in Syria's Homs province, Major General Yury Popov, deputy chief of the Russian Center for Reconciliation of the Opposing Parties in Syria, said during a briefing.

“The Russian Aerospace Forces' strikes have taken out two bases of militants who had left the Al-Tanf area and holed up in hard-to-reach mountainous areas of the Amour Range in Homs province,” he said.

<https://tass.com/defense/1791925>

Kalashnikov gunmaker delivers large batch of missiles for Strela-10M3 air defense systems

TASS, May 24, 2024

The Kalashnikov Group has delivered a large batch of missiles for Strela-10M3 air defense systems to Russian troops under an enlarged defense procurement plan, the company's press office said on Friday.

“The Kalashnikov Group has successfully dispatched to the customer a large batch of 9M333 surface-to-air missiles under the enlarged 2024 defense procurement plan. A 9M333 precision-strike surface-to-air missile is used as part of the Strela-10M3 air defense system,” the press office said in a statement on its Telegram channel.

The missile is designed to engage low-flying targets under enemy jamming conditions and also drones and cruise missiles. The missile homing warhead can operate in several modes that gives it an advantage over other warheads of this class. The missile uses the “fire-and-forget” principle.

<https://tass.com/defense/1792723>

Belarus, Russia start joint air force, air defense exercises in Belarus – ministry

TASS, May 27, 2024

Belarus and Russia kicked off joint exercises of their air forces and air defenses in Belarus, according to the Belarusian Defense Ministry.

“In the period from May 27 to 31, as part of an effort to improve the unified regional air defense system of the Republic of Belarus and the Russian Federation and in the interests of improving the interoperability and skills of commanding units and flight personnel, a joint flight tactical exercise involving the forces and capabilities of the Air Force and Air Defense Forces of the Armed Forces of the Republic of Belarus and the Air Force of the Russian Federation is being conducted under the direction of the commander of the Air Force and Air Defense Forces,” the ministry said in a statement.

<https://tass.com/defense/1794129>

Russia to build nuclear power plant in Uzbekistan

Al Jazeera, May 27, 2024

Russia will build a small nuclear power plant in Uzbekistan, the first such project in post-Soviet Central Asia, Uzbek President Shavkat Mirziyoyev has said as he met visiting Russian President Vladimir Putin.

Putin said on Monday that Russia would put \$400m into a joint investment fund of \$500m to finance projects in Uzbekistan.

Mirziyoyev also said Tashkent was interested in buying more oil and gas from Russia, a reversal of decades-long practice where Moscow imported hydrocarbons from Central Asia.

The Uzbek president described Putin’s visit as “historic”.

“It heralds the beginning of a new age in the comprehensive strategic partnership and alliance relations between our countries,” Mirziyoyev said.

Putin described Tashkent as a “strategic partner and reliable ally”.

<https://www.aljazeera.com/news/2024/5/27/russia-to-build-nuclear-power-plant-in-uzbekistan>

Russian army helicopters destroy enemy forces on mountainous terrain in Tajikistan drills

TASS, May 28, 2024

Crews of Mi-8MTV5-1 transport-combat and Mi-24 attack helicopters from an air group of Russia’s 201st military base practiced hunting down and eliminating a notional enemy during drills in mountains of Tajikistan, the press office of the Central Military District reported on Tuesday.

“The crews practiced reconnoitering enemy forces and capabilities in hard-to-access high mountains. In the airspace of the Lyaury practice range, the crews conducted notional launches of S-8 air-to-surface rockets against the simulated enemy’s massed equipment and manpower,” the press office said in a statement.

The helicopter crews also practiced piloting skills in passing through mountain gorges, flying over peaks and rocky areas and landing helicopters on sites located at an altitude of up to 3,000 meters above sea level, it said.

<https://tass.com/defense/1794815>

E. Europe

Slovakia and South Korea discuss cooperation on new nuclear

World Nuclear News, May 20, 2024

The Slovak Republic’s government officially approved the plans for a new 1.2 GWe unit, near the existing Bohunice nuclear power plant, last week. The government asked the economy ministry to draw up details of the plan by the end of October. The government meeting and the decision took place last Wednesday,

before Prime Minister Robert Fico was targeted in an assassination attempt. He is described as in a serious but stable condition and recovering in hospital.

Slovak Republic Foreign Minister Juraj Blanár was on a visit to South Korea last week, and held talks with his South Korean counterpart Cho Tae-yul about expanding their bilateral cooperation to the status of strategic partnership.

The Slovak Republic's official TASR news agency reported Blánár as saying: "We also talked with our South Korean partner about the use of nuclear energy, in which Slovakia and South Korea see great potential. The Republic of Korea has extensive experience in the planning, construction and operation of nuclear power plants, so we welcome further discussion and consultations with the South Korean side."

It added that the minister said that South Korea could be a potential partner in the construction of the new nuclear block, and that there was also discussion about small modular reactors, which Slovakia is considering.

Slovakia currently has five nuclear reactors - three at Mochovce and two at Bohunice - generating half of its electricity, and it has one more at Mochovce under construction. Both plants are operated by Slovenske Elektrarne.

<https://www.world-nuclear-news.org/Articles/Slovakia-and-South-Korea-discuss-cooperation-on-ne>

Ukraine war briefing: France flies nuclear-capable missile as Russia holds drills

The Guardian, May 23, 2024

France has carried out its first test firing of an updated nuclear-capable missile, the ASMPA-R, designed to be launched by a Rafale fighter jet, according to the French defence minister, Sebastien Lecornu. It came a day after Russia said it began nuclear drills in its southern military district, which stretches from Russia into occupied Ukrainian territory. The announcement

of Russian drills is partly directed at France after its president, Emmanuel Macron, said he would not rule out sending in troops on Ukraine's side.

Lecornu said the missile was fired without a warhead by a plane in an exercise "above national territory ... at the end of a flight representing a nuclear air raid". He congratulated "all the forces, [defence] ministry teams and industrial partners involved" in a "long-planned" operation. France plans to spend about 13% of its military budget over the coming years on its independent nuclear capability, including upgrading to next-generation air-launched missiles by 2035.

<https://www.theguardian.com/world/article/2024/may/23/ukraine-war-briefing-france-flies-nuclear-capable-missile-as-russia-holds-drills>

EU and ESA seek increased competitiveness of European space sector

Space News, May 24, 2024

European officials adopted a resolution to increase the competitiveness of Europe's space industry, but members of that industry say the measure falls far short of what is needed.

At the conclusion of a Space Council meeting May 23 in Brussels, members of the European Space Agency and European Union adopted a resolution on strengthening Europe's competitiveness in space, including supporting companies working in the industry.

The resolution does not include any major new initiatives regarding space industry competitiveness, but instead highlights and emphasizes ongoing efforts. That includes efforts like the EU's Cassini program to stimulate investment in space companies and increased use of procurements of services.

"Our conclusions reiterate the importance of the space program for Europe's strategic policies and actions and for strengthening the competitiveness and resilience of our space industry," said Thomas Dermine,

federal state secretary for research for Belgium, which holds the current EU presidency, at a briefing after the meeting. "They call for public and private investment to support innovation, and the essential role of SMEs," or small and medium-sized enterprises.

<https://spacenews.com/eu-and-esa-look-for-increased-competitiveness-of-european-space-sector/>

France and Germany say Ukraine should be able to use their weapons to strike inside Russia

CNN, May 29, 2024

France and Germany said Tuesday that Ukraine should be allowed to use their weapons against targets inside Russia from which Moscow attacks Ukraine.

Speaking at a news conference alongside German Chancellor Olaf Scholz on Tuesday, French President Emmanuel Macron outlined that French weapons sent to Ukraine, including long-range missiles, were permitted to target bases inside Russia.

"Ukrainian soil is being attacked from bases in Russia," Macron said during his visit to Schloss Meseberg in Brandenburg, Germany. "So how do we explain to the Ukrainians that we're going to have to protect these towns and basically everything we're seeing around Kharkiv at the moment, if we tell them you are not allowed to hit the point from which the missiles are fired?"

"We think that we should allow them to neutralize the military sites from which the missiles are fired and, basically, the military sites from which Ukraine is attacked," Macron continued. Macron added, however, that "we must not allow them to hit other targets in Russia," including civilian or other military targets.

<https://edition.cnn.com/2024/05/28/europe/ukraine-french-weapons-russia-macron-intl-hnk-ml/index.html>

German defence minister announces •500m military support package for Ukraine

Euronews, May 31, 2024

Russia launched a fresh offensive in Kharkiv earlier this month, and Ukrainian military commanders reported a renewed build-up of Moscow troops in the north of the region on Thursday.

Germany's Defence Minister Boris Pistorius has announced a •500 million military support package for Ukraine.

He made the announcement during a trip to the southern port city of Odesa, which had been kept secret until the evening for security reasons.

"Ukraine is under pressure because the Russian forces are doing everything they can to extend the length of the front and tie up Ukrainian forces. But they are succeeding," he said.

"At the same time, no really significant and sustainable breakthroughs are being made. The situation is therefore naturally one of pressure, but not one that Ukraine seems unable to cope with at the moment."

This was Pistorius' third visit to Ukraine since the 2022 Russian invasion.

The military aid package includes ammunition for Ukraine's medium-range air defence system and shorter-range SLS missiles. It also includes spare parts and barrels for artillery systems and around one million rounds of small ammunition.

Germany is the second-largest provider of arms to Ukraine after the US and Pistorius said some of the items are about to be delivered.

<https://www.euronews.com/my-europe/2024/05/31/german-defence-minister-announces-500-million-military-support-package-for-ukraine>

F. The United States of America

NASA, European Space Agency Unite to Land Europe's Rover on Mars

NASA, May 16, 2024

NASA and ESA (European Space Agency) announced Thursday they signed an agreement to expand NASA's work on the ExoMars Rosalind Franklin rover, an ESA-led mission launching in 2028 that will search for signs of ancient life on the Red Planet.

With this memorandum of understanding, the NASA Launch Services Program will procure a U.S. commercial launch provider for the Rosalind Franklin rover. The agency will also provide heater units and elements of the propulsion system needed to land on Mars. A new instrument on the rover will be the first drill to a depth of up to 6.5 feet (2 meters) deep below the surface to collect ice samples that have been protected from surface radiation and extreme temperatures.

"The Rosalind Franklin rover's unique drilling capabilities and onboard samples laboratory have outstanding scientific value for humanity's search for evidence of past life on Mars," said Nicola Fox, associate administrator, Science Mission Directorate at NASA Headquarters in Washington. "NASA supports the Rosalind Franklin mission to continue the strong partnership between the United States and Europe to explore the unknown in our solar system and beyond."

Through an existing, separate partnership with the German Aerospace Center (DLR) and the French space agency CNES (Centre National d'Etudes Spatiales), NASA is contributing key components to the Rosalind Franklin rover's primary science instrument, the Mars Organic Molecule Analyzer, that will search for the building blocks of life in the soil samples.

<https://www.nasa.gov/news-release/nasa-european-space-agency-unite-to-land-europes-rover-on-mars/>

West Asia

G. Iran

IRGC warship back to Iran after Indian Ocean mission

IRNA, May 18, 2024

This is the first time that IRGC vessels cross the equator and enter the southern hemisphere, Brigadier Alireza Tangsiri, the commander of IRGC Navy said on Saturday, according to Sepahnews, the official portal of the IRGC.

Today, with reliance on advanced defensive and military capabilities, the naval forces of the IRGC and the Iranian Army have turned into the nightmare of the regional and extra-regional enemies, the commander said.

The warship returned to Iran after a 39-day mission to the Indian Ocean and the orbit of 22.5 degrees in the Southern Hemisphere.

<https://en.irna.ir/news/85481364/IRGC-warship-back-to-Iran-after-Indian-Ocean-mission>

Pakistan's armed forces will stand by Iran's: Army chief

IRNA, May 26, 2024

Gen. Munir made a phone call to Chief of Staff of the Iranian Armed Forces Major General Mohammad Bagheri on Sunday, expressing his condolences over the tragic martyrdom of President Raisi and his foreign minister, Hossein Amirabdollahian, who was martyred in a helicopter crash last week along with several other officials.

Gen. Munir said that late President Raisi and his top diplomat, Amirabdollahian, were exceptional statesmen and true friends of Pakistan, according to a statement by the Pakistani Army's public relations office.

"Pakistan has historical, cultural and fraternal relations with Iran, and the

armed forces of Pakistan and Iran will always stand by each other," he stated.

The statement said that General Bagheri expressed his commitment to the continued expansion of military cooperation between Iran and Pakistan. The phone call followed a visit to Tehran by Pakistani Prime Minister Shehbaz Sharif on Wednesday to extend his condolences to the Iran. He had declared Tuesday a day of mourning in Pakistan over the martyrdom of Iran's president.

<https://en.irna.ir/news/85490278/Pakistan-s-armed-forces-will-stand-by-Iran-s-Army-chief>

H. Israel

Azerbaijan's Artillery Corps Employs Israeli Elta's ELM-2084 Radar

Israel Defense, May 20, 2024

The Azerbaijani Ministry of Defense has confirmed that its land forces are using a smaller version of the Israeli-made ELM-2084 multi-mission radar to support artillery units. An Israel Aerospace Industries (IAI) Elta's ELM-2084 radar was clearly seen in a video released by the Azerbaijani Ministry of Defense several days ago, showing an artillery exercise involving 2S19 Msta-S self-propelled howitzers (SPHs) and 2A36 Giatsint-B towed guns.

<https://www.israeldefense.co.il/en/node/62044>

Elbit Systems Secures \$760 Million in Ammunition Supply Contracts with Israeli MoD

Israel Defense, May 21, 2024

Elbit Systems announced today (Tuesday), further to the report in its Annual Report on Form 20-F for the year ended December 31, 2023, filed on March 28, 2024, that it was awarded a group of contracts in an aggregate amount of approximately \$760 million for the supply of ammunitions to the Israeli Ministry of Defense (IMOD). The contracts will be performed over a period of two years.

<https://www.israeldefense.co.il/en/node/62067>

UVision's Hero-120 Loitering Munition Integrated with GM Defense's Light Tactical Utility Vehicle

Israel Defense, May 22, 2024

GM Defense, a subsidiary of General Motors, and Mistral Inc., a provider of defense and security solutions to U.S. defense and federal agencies, have announced the integration of the Israeli UVision Hero-120 loitering munition with GM Defense's light tactical utility vehicle.

The GM Defense utility concept vehicle is based on the Chevrolet Colorado ZR2. The vehicle features a cargo bed in the rear, ideal for housing UVision's Hero-120 solution, or for supporting command and control, electronic warfare, counter-unmanned aircraft systems, reconnaissance, and logistics.

The Hero-120 is designed to engage enemy combatants without exposing soldiers to direct enemy fire. This loitering munition system is versatile, capable of targeting a variety of threats, including armored vehicles, enemy troops, field fortifications, and urban structures. Its precision strike capability maximizes effectiveness while minimizing collateral damage.

<https://www.israeldefense.co.il/en/node/62079>

Epsilor to Supply Advanced Multi-Charger Racks for Spike SR and LR Launcher Batteries

Israel Defense, May 29, 2024

Epsilor, an Israeli developer and manufacturer of smart Li-Ion batteries and chargers, has announced that it has been chosen by RAFAEL to develop and produce Multi-Charger Racks (MCR) for its SPIKE SR and SPIKE LR man-portable launcher batteries. The first delivery is expected by the end of 2024.

According to the company, the development and production of the Multi-Charger Rack will enable customers to continuously charge stored batteries, ensuring that fully charged batteries are always ready for use with

SPIKE Launchers. With five drawers, each capable of charging up to eight batteries, the Multi-Charger Rack (MCR) allows for the simultaneous charging of up to 40 batteries. The maximum charging time is six hours for the SPIKE LR battery and three hours for the SPIKE SR battery.

<https://www.israeldefense.co.il/en/node/62168>

Roboteam to Supply U.S. Marine Corps with Hundreds of MTGR Robots

Israel Defense, May 29, 2024

Roboteam Defense, an Israeli developer and manufacturer of tactical unmanned platforms for defense and security missions, announced that it has received an initial purchase order to deliver over 130 of its Micro Tactical Ground Robot (MTGR) systems to the United States Marine Corps. This initial delivery is part of a larger order, totaling approximately 200 units and valued at around \$30 million.

The purchase order was secured through collaboration with Roboteam's U.S. partner, Mistral Inc. Roboteam will supply approximately 200 MTGR units to the U.S. Marine Corps, along with spare parts and maintenance services. Manufacturing is being conducted locally in the U.S., with final assembly at Mistral's White Marsh production facility. The first batch of MTGR systems has already been delivered to the U.S. Marine Corps, and Roboteam aims to complete the delivery by the first quarter of 2025.

<https://www.israeldefense.co.il/en/node/62169>

Elbit Upgrades Argentinian Army's TAM2C A2 MBTs

Israel Defense, May 30, 2024

Elbit Systems, an Israeli company, is currently upgrading the TAM2C A2 Main Battle Tank fleet for the Argentine army. According to the Army Recognition, the agreement with Elbit covers the entire modernization of the tank turret, including the integration of new technological

components. Meanwhile, the Argentine Army is responsible for refurbishing the vehicle hulls, which involves replacing many mechanical components and spare parts.

The TAM2C A2 project aims to modernize 74 tanks over five years, with an additional phase to upgrade 30 more units, ultimately exceeding 100 tanks within the projected timeframe. Despite progress, the project has faced delays, with initial expectations to deliver between 10 and 12 tanks by December 2023. However, as of May 2024, the Argentine Army only possesses two TAM2C A2 combat tanks.

<https://www.israeldefense.co.il/en/node/62174>

I. Türkiye

Turkey's navy deploys unmanned surface vessels during Denizkurdu drill

Defense News, May 21, 2024

The Turkish Naval Forces hosted an exercise in the Mediterranean Sea this month that involved several unmanned surface vessels, among other ships, submarines and aircraft.

The Denizkurdu-II drill, which also saw participation by the Turkish Air Forces, began May 7 and concluded May 18.

Six Albatros-S unmanned surface vessels, made by domestic company Aselsan, were in attendance. The platform is 7.2 meters long and 2 meters wide. It has a displacement of 2,200 kilograms. Its diesel engine can propel the vessel more than 40 knots. The vessel can carry a 200-kilogram warhead.

The other was the TCB 1101, the first unmanned surface vessel commissioned with the navy. The Marlin platform previously took part in NATO exercises REPMUS and Dynamic Messenger in 2022 off the coast of Portugal.

<https://www.defensenews.com/training-sim/2024/05/21/turkeys-navy-deploys-unmanned-surface-vessels-during-denizkurdu-drill/>

J. East Asia

North Korea fires multiple short-range missiles, Seoul says

The Japan Times, May 17, 2024

North Korea fired multiple short-range ballistic missiles toward the sea off its eastern coast, the South Korean military said Friday, just hours after the powerful sister of the North's leader denied allegations of sending weapons to Russia.

The South Korean military did not immediately provide more details, including the distance traveled. Japan's Defense Ministry did not report the launches, but government officials told NHK that the weapons were likely short-range.

"Our military has ramped up monitoring and vigilance against additional launches, while closely sharing information related to North Korean ballistic missiles with the U.S. and Japanese authorities," the South Korean Joint Chiefs of Staff said in a statement.

<https://www.japantimes.co.jp/news/2024/05/17/asia-pacific/north-korea-missile-may-17/>

Japan warns residents to take cover from North Korean missile threat

Reuters, May 27, 2024

The Japanese government issued an emergency warning on Monday for residents in the south to take cover from the possible threat of a North Korean missile.

Japan said over its J-Alert broadcasting system that North Korea appeared to have fired a missile, sending out the warning to residents in southern prefecture of Okinawa.

North Korea had earlier in the day notified Japan that it plans to launch a satellite.

<https://www.reuters.com/world/asia-pacific/japan-warns-residents-take-cover-north-korean-missile-threat-2024-05-27/>

K. Southeast Asia

Turkish MILGEM Corvette In Malaysia's LMS Batch 2 Configuration

Naval News, May 20, 2024

STM officials, in conversation with *Naval News*, affirmed that the project remains on schedule, with final contract details under negotiation. Consequently, while the contract wasn't anticipated to be signed at the DSA 2024 exhibition, it is expected to be finalized in the forthcoming months. However, STM officials refrained from divulging specifics regarding the contract timeline and the potential configuration of the ship.

According to the model of the MÝLGEM corvette showcased at the Malaysian Navy's booth, the dimensions of the corvette for Malaysia seem the same as the Turkish counterpart. While there are some configuration adjustments, the design appears to adhere closely to the proven Ada-class corvette blueprint.

Notably, the primary difference in the LMS Batch 2 Corvette lies in its integration of air defence missiles. Plans entail outfitting the ship with air defense missiles, housed in 2×2-cell Vertical Launch Systems (VLSs) situated in the aft mast area of the vessel. Information gathered by Naval News at the exhibition indicates that the selected air defence missile for LMS Batch 2 is the Haegung (which means "Sea Bow", or Korean Surface-to-Anti Air Missile (K-SAAM), manufactured by the South Korean company Lig NEX1. With these missiles arranged in a quad-pack configuration, a total of 16 Haegung Surface-to-Air Missiles (SAAMs) will be onboard.

<https://www.navalnews.com/naval-news/2024/05/turkish-milgem-corvette-in-malaysias-lms-batch-2-configuration/>

Philippines receives two delayed T129 combat helicopters

Defense News, May 25, 2024

The Philippines took delivery of the last two of six T129 combat helicopters from Turkish Aerospace Industries, the company announced this week, about a year behind the anticipated schedule.

The acquisition is part of the Philippines' Horizon 2 program to modernize its armed forces.

The helicopters arrived at Major Danilo Atienza Air Base in Cavite on May 17. A ceremony marking their arrival involved the head of the Philippines' Air Combat Command, the wing commander of the 15th Strike Wing, and other unit commanders and representatives from the country's Air Force.

The two platforms, designated No. 1505 and No. 1506, are the fifth and sixth T129 Atak helicopters procured through a \$269 million government-to-government agreement with Turkey. They were meant to arrive in early 2023, Defense News previously reported.

The Philippine Air Force confirmed that the two helicopters, which initially arrived in the Philippines on Nov. 29, underwent technical inspections before their commissioning this month.

<https://www.defensenews.com/global/asia-pacific/2024/05/24/philippines-receives-two-delayed-t129-combat-helicopters/>

Thailand exploring small modular nuclear reactor technology, says PM

The Business Times, May 31, 2024

Thailand is exploring small modular nuclear reactor technology as South-east Asia's second-largest economy looks to diversify its energy mix, Prime Minister Srettha Thavasin said on Friday (May 31).

"Our green transition goal is one of the most ambitious in South-east Asia, and we have a comprehensive roadmap in place to have 50 per cent of energy production be

renewable by 2040," Srettha said at an American Chamber of Commerce event in Bangkok.

Small modular reactors are advanced nuclear reactors with the capacity to generate around one-third of the electricity produced by traditional nuclear power reactors, according to the International Atomic Energy Agency.

<https://www.businesstimes.com.sg/international/asean/thailand-exploring-small-modular-nuclear-reactor-technology-says-pm>

L. Africa

Uganda looks to potential uranium production

World Nuclear News, May 16, 2024

IAEA Integrated Uranium Production Cycle Review (IUPCR) missions are designed to assist IAEA member countries in the development of infrastructure for national uranium production programmes, through all phases of the uranium production cycle. Carried out at the request of the country in question, the missions provide independent reviews based on IAEA safety standards, technical guidance, and international good practices, and also give representatives of the requesting country the opportunity for in-depth discussions with international experts about experiences and best practices in legal, regulatory and operational aspects specific to the uranium production cycle. The reviews enable countries to identify areas that require more focus or additional resources or to confirm their readiness to move forward with their uranium production cycle.

"This morning I welcomed experts from the International Atomic Energy Agency (IAEA) for the Integrated Uranium Production Cycle Review (IUPCR) Mission for Uganda," Minister of State for Energy and Mineral Development (Minerals) Phiona Nyamutoro said on X.

"Uganda's plans to develop nuclear power plants with a total output of 24,000 MW

will require nuclear fuel. To this effect, Uranium exploration is ongoing in the country with the aim of discovering uranium deposits for sustainable nuclear fuel supply," she continued that the government "also plans to establish a centre for Nuclear Science and Technology for nuclear education, training, research and this ... will require Uranium for Production of radioisotopes for industrial and medical applications".

<https://www.world-nuclear-news.org/Articles/Uganda-looks-to-potential-uranium-production>

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