

Israeli tanks ram gate of UN facility in Lebanon

INTERNATIONAL RELATIONS



The campus of United Nations Interim Force in Lebanon (UNIFIL) came under attack for the fourth consecutive day, with Israel Defence Forces (IDF) tanks destroying the main gate of a facility of the UN peacekeeping forces at Ramyah in south Lebanon on Sunday. The United Nations Interim Force in Lebanon (UNIFIL) alleged IDF soldiers of stopping a critical logistical movement near Meiss ej Jebel on Saturday.

Israeli Prime Minister Benjamin Netanyahu in a video message to UN Secretary-General Antonio Guterres appealed for withdrawal of UNIFIL from “Hezbollah strongholds and from the combat zones”.

There are more than 10,000 peacekeepers from 50 countries under UNIFIL, under the Security Council. India is the third largest contributor to the force with 903 soldiers. On Saturday, a joint statement was issued, initially by 34 troop-contributing countries to UNIFIL, later endorsed by six more countries, including India, condemned the ongoing attacks on peacekeepers and called all to respect UNIFIL’s mission and ensure the safety of its personnel.

Breaching and entering a UN position is a flagrant violation of international law and Security Council resolution 1701 (2006). Any deliberate attack on peacekeepers is a grave violation of international humanitarian law and Resolution 1701. UNIFIL’s mandate provides for its freedom of movement in its area of operations, and any restriction on this is a violation of Resolution 1701.

Ladakh aurorae validate space weather tracking, scientists say

SCIENCE & TECHNOLOGY

A team of astrophysicist’s predicted Ladakh’s recent sightings of aurora throughout the night of October 10-11 was captured by all sky cameras operated by the Bengaluru-based Indian Institute of Astrophysics at Hanle and Merak in Ladakh. Auroras are marked by reddish or greenish light in the night sky and usually observed in the far-northern regions.

Aurorae are a common sight in the planet’s far-north, in countries near or within the Arctic Circle. The occurrence of aurora in lower-latitude regions such as Ladakh is an indication of heightened solar

activity in the form of solar storms, known as Coronal Mass Ejections (CMEs). The extreme weather events in space can potentially endanger all kinds of satellite-based services on the Earth. Solar storms periodically occur as the sun's internal dynamo, which creates its magnetic field, intensifies and weakens with activity cycle typically lasting 11 years.

U.S. to send missile defence system and troops to Israel

INTERNATIONAL RELATIONS



The United States will deploy a Terminal High Altitude Area Defence (THAAD) battery to Israel, along with the troops needed to operate it, even as Iran warned Washington to keep American military forces out of Israel. The system will help bolster Israel's air defences following Iran's ballistic missile attacks on Israel in April and October.

The delivery of the sophisticated missile defence system risks further inflaming the conflict in the West Asia despite widespread diplomatic efforts to avoid an all-out war. Israeli forces and

Hezbollah fighters in Lebanon have been clashing since October 8, 2023, when the Lebanese militant group began firing rockets over the border in support of its ally Hamas in Gaza. Late last month, Israel launched a ground invasion into Lebanon.

Military response

Israel is widely believed to be preparing a military response to Iran's October 1 attack when it fired roughly 180 missiles into Israel. The THAAD is considered a complementary system to the Patriot, but it can defend a wider area. It can hit targets at ranges of 150 to 200 kilometres.



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Vietnam, China hold talks on calming row on South China Sea

INTERNATIONAL RELATIONS

Vietnam and China agreed to calm tensions in their South China Sea dispute, days after Hanoi accused Beijing of a “brutal” attack on its fishermen. China is Vietnam’s biggest trade partner, but the two countries share historic tensions including in the South China Sea, a waterway through which trillions of dollars of trade pass each year.

Disputed claims in the South China Sea

Claims

- China
- Philippines
- Malaysia
- Brunei
- Vietnam



Area:

South China Sea covers more than 3 million sq km

Trade:

Over \$5 trillion in ship-borne trade passes through the sea annually

Oil and gas:

Major unexploited oil and gas deposits are believed to lie under the seabed



Sources: CSIS/AMTI/D.Rosenberg/MiddleburyCollege/HarvardAsiaQuarterly/Phil govt/ChinaMaritimeSafetyAdministration



Beijing has for years sought to expand its presence in contested areas of the sea, brushing aside an international ruling that its claim to most of the waterway has no legal basis. Vietnamese Prime Minister Pham Minh Chinh and visiting Chinese Premier Li Qiang “exchanged sincere opinions on maritime issues” in Hanoi.



“If you invest more in your education, then you are likely to get more interest in it.”

—Benjamin Franklin

What is Wayanad's new X-band radar?

SCIENCE & TECHNOLOGY

In July 2024, the Union Ministry of Earth Sciences approved an X-band radar to be installed in Kerala's Wayanad district after devastating floods and landslides killed more than 200 people. A torrential downpour triggered the landslide in the valley above Punchirimattom, near the Mundakkai region; its effects were compounded by a massive debris flow triggered by the rains.

How do radars work?

Radar, short for 'RADIO Detection And Ranging' uses radio waves to determine the distance, velocity, and physical characteristics of objects around the device. A transmitter emits a signal aimed at an object whose characteristics are to be ascertained (in meteorology, this could be a cloud). A part of the emitted signal is echoed by the object back to the device, where a receiver tracks and analyses it.

Weather radar, also known as a Doppler radar, is a common application of this device. The Doppler effect is the change in frequency of sound waves as their source moves towards and away from a listener. In meteorology, Doppler radars can reveal how fast a cloud is moving and in which direction based on how the cloud's relative motion changes the frequency of the radiation striking it.

A pulse-Doppler radar can measure the intensity of, say, rainfall by emitting radiation in pulses and tracking how often they're reflected to the receiver. A modern Doppler radars can monitor weather conditions and anticipate new wind patterns, the formation of storms, etc.

What is an X-band radar?

Doppler radar relies on Rayleigh scattering, when the scatterer is much smaller than the wavelength of the radiation. A radar trying to 'see' smaller particles like rain droplets or fog will need to use radiation of lower wavelengths, like in the X-band. An X-band radar is radar that emits radiation in the X-band of the electromagnetic spectrum: 8-12 GHz, corresponding to wavelengths of around 2-4 cm (this is in the microwave part of the spectrum.)

The smaller wavelengths allow the radar to produce images of higher resolution. However, the greater the frequency of some radiation, the faster it will be attenuated. So X-band radars have a relatively shorter range.

In Wayanad, the new radar is expected to be able to monitor the movements of particles, such as soil, to inform landslide warnings. The device will also perform high temporal sampling, that is, rapidly sample its environs, allowing it to spot particle movements happening in shorter spans of time.

How many radars does India have?

The India Meteorological Department (IMD) started using radar for weather applications in the early 1950s. The first indigenously designed and manufactured X-band storm detection radar was installed in 1970 in New Delhi. In 1996, IMD replaced 10 outdated X-band radars with digital X-band radars.

India has both wind-finding and storm-detecting X-band radars, and some with dual capabilities. The country also uses S-band radars (2-4 GHz) for long-range detection. The first S-band cyclone detection radar was installed in Visakhapatnam in 1970 and the first locally made variant was commissioned in Mumbai in 1980.

In September 2024, the Ministry of Earth Sciences said India is set to have 56 additional Doppler radars in a few years. On September 11, the Union Cabinet cleared the ₹2,000-crore 'Mission Mausam' to upgrade meteorological infrastructure in the country. This includes installing up to 60 meteorological radars until 2026 under the Mission's first phase.

The Government has started the process to procure and install 10 X-band Doppler radars to improve

weather forecasting in the northeast States and in Himachal Pradesh's Lahaul and Spiti district. The initiative to install an X-band radar in Wayanad included installing a C-band radar (4-8 GHz) with an observational range of 250 km in Mangaluru.

What is NISAR?

NASA and the Indian Space Research Organisation (ISRO) are currently developing a satellite called NISAR, short for 'NASA-ISRO Synthetic Aperture Radar' using radar imaging to produce a high-resolution map of the earth's landmasses. The payload consists of an L-band radar (1.25 GHz, 24 cm) built by NASA and an S-band radar (3.2 GHz, 9.3 cm) built by ISRO. Together they will track and record changes in the Earth's various natural processes. It is currently expected to be launched onboard an ISRO GSLV Mk II rocket in 2025, at a total cost of \$1.5 billion, the bulk of it borne by NASA.

Who gets the preferred symbol ?

POLITY & GOVERNANCE

The Nationalist Congress Party (NCP) founder Sharad Pawar has filed a plea in the Supreme Court, seeking a direction to restrain the Ajit Pawar faction from using the 'clock' symbol in the upcoming assembly polls in Maharashtra.

How are symbols allotted?

Symbols are allotted to political parties as per the provisions of the Symbols Order by the Election Commission of India (ECI). A national or State recognised political party has a reserved symbol that is not allotted to any other candidate in any constituency.

What is the present issue?

The NCP at present is a State recognised party in Maharashtra and Nagaland. In July 2023, there was a split in the NCP with the Ajit Pawar faction claiming the support of 41 MLAs out of 53 in the Maharashtra assembly. The ECI in February 2024 recognised Ajit Pawar faction as the real NCP and allotted to it the 'clock' symbol reserved for NCP during the Lok Sabha elections in April-May 2024. The NCP (Sharadchandra Pawar) [NCP (SP)] was allotted a common symbol of 'man blowing turha.' The NCP (SP) therefore has sought a direction to freeze the 'clock' symbol and allot a new symbol to Ajit Pawar faction.

What are past instances?

As per the Symbols Order, in case of split in a recognised political party, the ECI decides as to which faction or group is the recognised political party. It allots the reserved symbol to such faction. However, the ECI has also frozen symbols in the past before determining the dispute. The 'two leaves' symbol of the AIADMK party in Tamil Nadu was frozen in January 1989 and April 2017 due to competing claims. The 'bow and arrow' symbol of Shiv Sena was also frozen before a bye-election in October 2022.

What can be the way forward?

The Supreme Court in Sadiq Ali versus the ECI (1971), laid down the 3-test formula for determining which faction is to be recognised as the original political party. These are the aims and objectives of the party; its affairs as per the party's constitution that reflect inner party democracy; and majority in the legislative and organisation wings.

The ECI in its order in February 2024 held that there was no dispute between the two factions on the first test and that neither of the factions followed the party's constitution rendering the second test redundant. Since the organisational election of NCP in the year 2022 was shrouded with doubt, it went on to decide the issue solely based on majority in the legislature as a majority of legislators supported the Ajit Pawar faction.

Are the U.S.'s cybersecurity concerns over Chinese electric vehicles justified?

INTERNAL SECURITY

Electric Vehicles (EVs) increasingly rely on connected technologies to enable features such as Advanced Driver Assistance Systems (ADAS), autopilot, auto-park, geo-fencing (a virtual perimeter around a real-world location), and even charging. However, this heavy reliance on software and its vulnerabilities has drawn attention from U.S. officials, particularly concerning Chinese vehicle imports. In February 2024, the Biden administration launched an investigation into Chinese connected vehicles, many of which rely on these technologies, warning that they could pose national security risks. These vehicles, the administration pointed out, “collect large amounts of sensitive data on their drivers and passengers and regularly use their cameras and sensors to record detailed information on U.S. infrastructure.”

How strong is the global presence of Chinese EVs?

According to Statista, Chinese EV manufacturers are expected to generate a collective revenue of \$ 376.4 billion in 2024, while the global market is projected to reach \$ 786.2 billion. According to the International Energy Agency, Chinese EVs account for around 60 % of global EV sales. Major players in the Chinese EV market include names such as BYD (Build Your Dreams), Geely, Xiaomi, NIO, Li Auto, and SAIC Motor. These companies owe much of their success to substantial government support, including tax breaks and subsidies — particularly in the case of BYD.

Is there a threat to user safety?

Poor cybersecurity in EVs makes them easy targets for hackers. Beyond controlling the vehicle, hackers could access sensitive information, including financial data stored on the vehicle's onboard computer. Furthermore, EVs are often integrated with other smart devices — like smartphones and home systems — through IoT platforms. A breach in one system could lead to a broader compromise, granting hackers access to users' personal data, home security systems, or even real-time location. An attack on an EV's software could allow hackers to move laterally through connected systems. For instance, breaching an EV could potentially expose a user's local Wi-Fi network or smart home system, creating a ripple effect of security vulnerabilities.

Is there a threat to critical infrastructure?

EVs are also unique in their connection to power grids for charging, which presents another significant vulnerability. Power grids operate on a delicate balance of energy distribution, and a coordinated cyberattack on EV charging stations could destabilise entire grids. This could cripple energy supplies to major urban centres. Such attacks are not hypothetical. In 2022, hackers disabled EV charging stations outside Moscow, displaying pro-Ukraine messages in a politically motivated cyberattack. This incident highlighted the potential for nation-state threat actors to target infrastructure by manipulating connected vehicles.

What about attacks by nation states?

Some nation states further exacerbate the problem. Countries like Russia and China are known for their advanced cyber capabilities and motivations. In the case of EVs, nation state actors could exploit software vulnerabilities to infiltrate broader networks, target fleets of vehicles, or compromise critical infrastructure.

A notorious example of nation state cyber activity is the NOBELIUM group, a Russia-linked hacking collective, which executed a supply chain attack by exploiting software vulnerabilities. This attack

demonstrated how sophisticated actors could infiltrate tech systems, granting them access to sensitive information by targeting high-profile individuals and companies.

The combination of cybersecurity weaknesses in EVs, coupled with the capabilities of nation-state actors, underscores the significant risks involved in allowing foreign-built connected car technology to operate in critical markets like the U.S. The concerns raised by the Biden administration are far from unfounded — EV software security is a critical issue that requires urgent attention on a global scale.

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