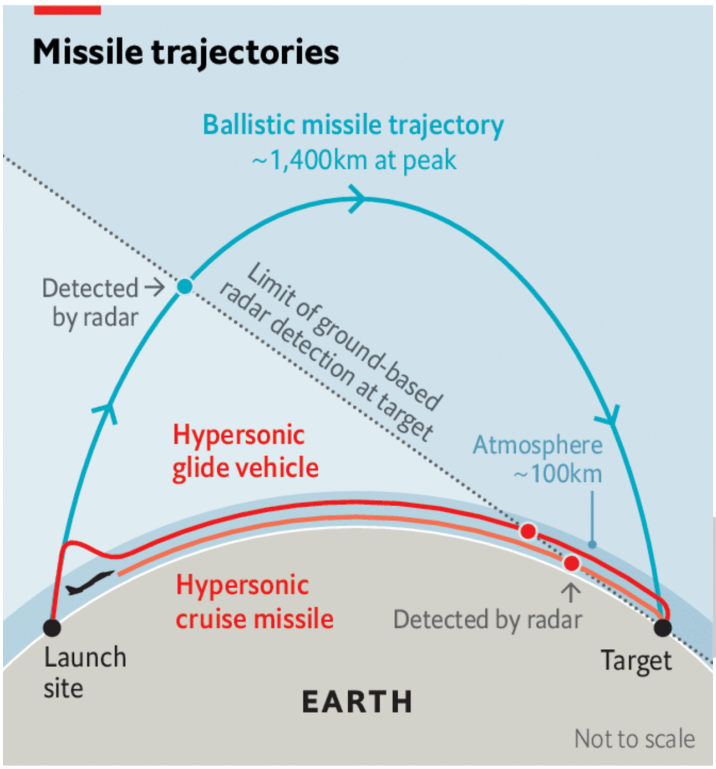
Missiles Jan – Dec 2023



The Economist

DRDO(Defence Research and Development Organisation)

- It was established in 1958 by the Government of India, under the Ministry of Defence.
- Chairman Defence Research and Development Organisation (DRDO) - **Dr. Samir V Kamat**
- **Headquarters: New Delhi.**

India Successfully Tests Short-Range 'Pralay' Ballistic Missile

- India successfully test fired surface-to-surface short-range ballistic missile (SRBM) 'Pralay' from Abdul Kalam Island off Odisha coast
- This Pralay missile has been developed by the Defense Research and Development Organization (DRDO).
- Pralay is a short-range missile with a range of 350-500 km.
- The load capacity of the catacombs is 500–1,000 kg.

- The Pralay missile, derived from the Prithvi Defense Vehicle, is a solid-fuel battlefield missile designed for deployment on the LAC and LOC.
- The Pralay missile can be compared with China's 'Dong Feng 12' and Russia's 'Iskander', which was used in the ongoing war with Ukraine.
- India is going to buy 250 more Pralay ballistic missiles for the services to strengthen **them on the northern borders.**

Naval Anti-Ship Missile Short Range:

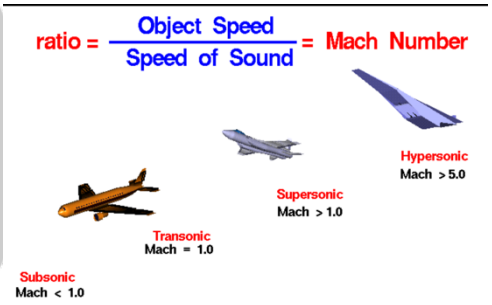
- The Indian Navy, in association with DRDO, successfully undertook Guided Flight Trials of Naval Anti-Ship Missile Short Range (NASM-SR).
- Naval Anti-Ship Missile Short Range (NASM-SR) is the first indigenous air-launched anti-ship cruise missile developed for the Indian Navy.
- It can be launched from attack helicopters.

- This missile will replace the Sea Eagle missiles, which are currently in use with the Navy.
- With a strike range of around 60 km, the air-launched anti-ship missile can travel at a speed of Mach 0.8.
- It can have a warhead of 100kg and is capable of sinking patrol boats and damaging larger warships.

Nirbhay Cruise Missile:

- The Indian armed forces will be inducting the long-range attack cruise missile Nirbhay into their inventory to strike targets at ranges over 1,000 km.
- Nirbhay Cruise Missile is a long-range sub-sonic cruise missile.
- It is India's first indigenously-produced cruise missile.
- The missile was developed by the Bengaluru-based Aeronautical Development Establishment, a lab under India's Defence Research and Development Organisation (DRDO).
- It can be armed with a 200-300 kilogram warhead. It can carry both conventional and nuclear warheads.
- It can be launched from multiple platforms.
- It is guided by INS/GPS with an active-radar terminal seeker.

General Info:



- The speed of sound is about 768 miles per hour (1,236 kilometers per hour) at sea level.
- These speeds are referred to by Mach numbers.
- The Mach number is the ratio of the speed of the aircraft to the speed of sound. Flight that is faster than Mach 1 is supersonic.
- Supersonic includes speeds up to five times faster than the speed of sound, or Mach 5.

LCA Tejas successfully test-fires ASTRA air-to-air missile

- Light Combat Aircraft (LCA) Tejas has successfully fired the ASTRA off the coast of Goa.
- **ASTRA, air-to-air missile** to engage and destroy highly manoeuvring supersonic aerial targets
- **Aim: To enhance the combat power of Tejas and reduce the dependency on imported weapons.**
- **It is designed and developed by Defence Research and Development Laboratory, Research Centre Imarat and other laboratories of DRDO.**

Indian Navy successfully carries out underwater test of 'Varunastra'

- The Indian Navy and Defence Research and Development Organisation (DRDO) have successfully tested **'Varunastra' Heavy Weight Torpedo (HWT).**
- 'Varunastra' is an advanced Heavy Weight **anti-submarine torpedo.** It is named after a legendary weapon created by the Hindu god of the oceans, Varuna.
- **Recently Navy tested an advanced missile known as 'Sea Skimming', from the destroyer INS Mormugao**. The missile is capable of hitting its target up to a distance of 300 km.

'Agni Prime' ballistic missile successfully flight-tested by DRDO

- New Generation Ballistic Missile 'Agni Prime' was successfully flight-tested by Defence Research and Development Organisation (DRDO) **from Dr APJ Abdul Kalam Island off the coast of Odisha.**
- **<u>About 'Agni Prime' Missile:</u>**
- It is the **latest and sixth variant of the Agni series missiles**, developed under the Integrated Guided Missile Development Program (IGMDP).

- It has a range of 1,000 - 2,000 km.
- It has a payload capacity of up to 1.5 tonnes for carrying warheads.

DRDO & Indian Navy conduct successful of Air Droppable Container 'ADC-150'

- DRDO and Indian Navy conducted the successful maiden test trial of 'ADC-150' from IL 38SD aircraft, Goa.
- It is an indigenously designed and developed Air Droppable Container with a 150 kg payload capacity.
- The trial was conducted to enhance the naval operational logistics capabilities.
- It reduces the requirement for ships to come close to the coast to collect spares and stores.

Amogha-III Missile:

- The Bharat Dynamics (BDL) has successfully conducted a field firing test of its latest **3rd generation man-portable Anti-Tank Guided Missile (ATGM), Amogha-III.**
- Amogha-III is an indigenous missile which has been **developed under Integrated Guided Missile Development Programme (IGMDP).**
- It has a fire-and-forget capability and does not require external intervention after the launch.
- The missile also features dual-mode Imaging Infra-Red (IIR) Seeker systems with a range of 200 to 2500 meters.

DRDO and Indian Navy successfully tests sea-based BMD interceptor missile

- Defence Research and Development Organisation (DRDO) and Indian Navy successfully conducted a **maiden flight trial of a sea-based endo-atmospheric interceptor missile off the coast of Odisha in the Bay of Bengal.**
- **(Endo-atmospheric missiles operate within the earth's atmosphere at altitudes below 100 kilometres, while exo-atmospheric missiles can complete missions in the uppermost region of the earth's atmosphere.)**
- With this successful test, India has entered an elite club of nations which have the capability to fire a **Ballistic Missile Defense (BMD) interceptor** from a naval platform.
- Only a few countries like the US, Russia, Israel and China have fully-operational BMD system.

India successfully carries out test launch of Prithvi-II ballistic missile

- Defence Research and Development Organisation (DRDO) has successfully launched Short-Range Ballistic Missile (SRBM), Prithvi-II from the Integrated Test Range, Chandipur, Odisha coast.
- Range: 350 km
- The Prithvi-II class is a single-stage liquid-fueled missile with a payload of 500–1000 kg. has warhead mounting capability.
- The missile system is capable of hitting targets with a very high degree of accuracy.
- Prithvi was the first missile developed under the Integrated Guided Missile Development Programme (IGMDP).
- The 5 missiles (P-A-T-N-A) developed under this program are:
- Prithvi: Short-range surface-to-surface ballistic missile.
- Agni: Surface-to-surface medium-range ballistic missile i.e. Agni (1,2,3,4,5).
- Trishul: Short-range surface-to-air missile.
- Nag: Third generation anti-tank missile.
- Akash: Medium-range surface-to-air missile.

Very Short-Range Air Defence (VSHORAD) Missile System

- The Indian defence establishment initiated a tender for the procurement of **30 units of the indigenous Very Short-Range Air Defence (VSHORAD) missile system.**
- Very Short-Range Air Defence (VSHORAD) missile system is a Man Portable Air Defence System (MANPAD) specially designed to counter **low-altitude aerial threats over short distances.**
- These are short-range, lightweight, and portable **surface-to-air missiles that can be fired by individuals or small groups.**
- It has been designed and developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad, in collaboration with other DRDO laboratories and Indian industry partners.
- The use of VSHORAD missiles in India is primarily by the Indian Army.
- DRDO's first project for the Indian military was in surface-to-air missiles (SAM) known as Project Indigo.

Igla-S: Hand-Held Anti-Aircraft Missiles

- Russia recently signed a contract to supply Igla-S hand-held anti-aircraft missiles to India and has **allowed the production of the Igla under license.**
- Igla-S is a man-portable air defence system (MANPADS) developed by Russia.
- It is known in the West as SA-24 Grinch.
- It entered service with the Russian Army in 2004.
- It has the capability of bringing down low-flying aircraft. It can also identify and neutralise air targets, such as cruise missiles and drones. It has an effective range upto 6 km.

Storm Shadow Missile:

- British-made Storm Shadow missiles were recently used in a Ukrainian strike that damaged a Russian submarine and ship at a major naval port in Crimea.
- Storm Shadow Missile is a long-range cruise missile with stealth capabilities jointly developed by the UK and France.
- The Storm Shadow is also in service with the air forces of Egypt, India, Italy, Greece, Saudi Arabia, Qatar, and the United Arab Emirates (UAE).

"David's Sling" Anti-Missile Defence System

- **Israel approves USD 344 million sale** of 'David's Sling' Defense System **to Finland**
- David's Sling is a highly sophisticated anti-missile defense system.
- The system is designed to intercept various types of missiles that may be fired towards Israel by hostile countries, like Iran and Syria.

Spike Non Line Of Sight (NLOS) Anti-Tank Guided Missiles:

- **Indian Air Force recently received** Israel's Spike Non Line of Sight (NLOS) **anti-tank guided missiles** (ATGM)**.**
- **It is developed by Rafael Advanced Defense Systems, a defence technology company based in Israel.**
- It is available in man-portable, vehicle-launched, and helicopter-launched variants.
- **Spike missiles are being used by the defence forces of Israel and another 38 countries, including India.**
- It can hit targets from distances of up to 30 kilometres.

Iran successfully launched ballistic missile 'Kheibar

- Iran has successfully test-launched a ballistic missile with a range of around 2,000-km
- The liquid-fuel missile had been named the Kheibar.
- The missiles are capable of carrying 1,500 kg of warheads.

Pakistan successfully tests medium-range 'Ababeel Weapon System'

- Inter-Services Public Relations (ISPR) of the Pakistan Army informed that Pakistan conducted a successful flight test of the 'Ababeel Weapon System'
- Ababeel is Pakistan's surface-to-surface medium-range ballistic missile. The Ababeel missile has a maximum range of 2,200 kilometers
- Pakistan currently has 6 operational ballistic missile systems with nuclear capability.
- These include short-range missiles Abdali , Ghaznavi , Shaheen-1/A and Nasr .
- Whereas Gauri and Shaheen-2 with medium-range firepower are included.