



Successful Test Firing of Agni V

India successfully tested its **nuclear-capable intercontinental ballistic missile (ICBM)**, Agni V which has a strike range of 5,000 km, from **Dr. Abdul Kalam Island (formerly the Wheeler Island) in Odisha**.

- This is the third successful launch of Agni-V this year (2018) and the fifth launch of the missile in a **canisterised form**.
- Agni-V is the most advanced **surface-to-surface indigenously built ballistic missile**.
- It is a **three-stage, solid fuel 17-metre tall**, and is capable of carrying a **nuclear warhead** of about 1.5 tonnes.
- Agni-V is a **fire and forget missile**, which once fired cannot be stopped, except by an interceptor missile.
- It has been developed under the **Integrated Guided Missile Development Programme (IGMDP)**.

IGMDP (Integrated Guided Missile Development Program)

- It was conceived by **Dr. A.P.J. Abdul Kalam** to enable India attain self-sufficiency in field of missile technology. It was approved by **Government of India in 1983** and **completed in March 2012**.
- The **5 missiles (P-A-T-N-A)** developed under this program are:
 - **Prithvi**: Short range **surface to surface** ballistic missile.
 - **Agni**: **Ballistic missiles** with different ranges, i.e. Agni (1,2,3,4,5)
 - **Trishul**: Short range low level **surface to air missile**.
 - **Nag**: 3rd generation **anti-tank missile**.
 - **Akash**: Medium range **surface to air missile**.
- The launch operations were carried out and monitored by the **Strategic Forces Command (SFC)**.
 - SFC is a part of **India's Nuclear Command Authority (NCA)** which was **created in 2003** to manage India's nuclear arsenal.
 - NCA is India's nodal authority responsible for command, control and operational decisions regarding India's nuclear weapons programme. It has an **Executive Council (headed by National Security Advisor)** which gives input to the **Political Council (headed by the Prime Minister)**. The Political Council, authorizes a **nuclear attack if need be**.

Canister Based Launch System

- Canister based launch system- serves as a **container for transportation**; a housing **during storage** aboard a vessel; provides **operational flexibility**.
- A canister launch system can be either **hot launch**, where the missile ignites in the cell, or **cold launch**, where the missile is expelled by gas produced by a gas generator which is not part of the missile itself, and then the missile ignites.
- **Cold launch is safer** than hot launch as the ejection system will eject the missile by itself even if there is a missile failure. In case of **Agni V, it will be a cold launch**.
- In case of hot launches the problem is the heat produced by the missile at the time of launch. The

hot launch is better for small missiles as the ejection part itself will be done by using missiles own engine.

- In addition to this technology, India is also working to master the **Multiple Independent Re-entry Vehicle (MIRV) technology** which is also considered as India's technological solution for Minimum Nuclear Deterrence.
 - The fundamental characteristic of deploying MIRVs is its ability to **deliver several warheads** along **separate trajectories**, which confers it **flexibility of multiple targeting**.

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