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Perspective

Types and Ranges of Missile Defense

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DESCRIPTION

The detection, tracking, interception, and destruction of advancing missiles are all tasks performed by a missile defence system, weapon, or technology. It was originally designed as a deterrent against nuclear-tipped intercontinental ballistic missiles (ICBMs), but its use has expanded to cover shorter-ranged theatre and tactical missiles without nuclear warheads. A number of countries, including China, France, India, Iran, Israel, Italy, Russia, Taiwan, the United Kingdom, and the United States, have created similar air defence systems.

There are some unquestionably effective exoatmospheric countermeasures an attacking party can deploy to discourage or entirely defend against specific defence system kinds, ACBM ranges, and intercept sites given the enormous variety by which a defence system can work. Although several protections against these countermeasures have been put in place and taken into consideration when building missile defence systems, this does not ensure their efficacy or success. The U.S. Missile Defense Agency has come under fire for its failure to anticipate the need for these countermeasures, prompting numerous scientists to conduct numerous research and data analyses to determine the true efficacy of these countermeasures.

Types of missile defense

Nuclear missile defence has long been a divisive military and political topic. However, missile defence is no longer solely responsible for the ability to intercept strategic nuclear missiles. The distinction between technologies for the interception of tactical missiles and those for the interception of strategic missiles has become more hazy as a result of the progressive development and dissemination of missile technology. High-performance tactical ballistic missiles with non-nuclear payloads are now able to alter the strategic balance in conflict zones. The same is true for high-performance tactical missile defence systems, which can now affect force deployment plans.

In the late 1990s, the UK, France, and Italy created a programme named PAAMS (also known as Sea Viper in the UK). It was created to equip the frigate of the Horizon-class (a joint programme between the UK, France and Italy). The UK chose to develop and build its own Type 45 destroyer, which would still utilise the PAAMS missile system, after withdrawing from the frigate programme due to ongoing disagreements. Following this departure, France and Italy developed SAMPT, a truck-launched anti-ballistic missile system that employed PAAMS technology, and included a ground-launched anti-ballistic missile system in the plans.

Ranges of missile defense

The tactical, theatre, and strategic types/ranges are among them. A defence system that can intercept one type of missile typically cannot intercept others because each has certain requirements for intercept that must be met. However, there is occasionally a capability overlap.

Strategic: ICBMs with a long range and a speed of around 7 km/s are the target (15,700 mph). Examples of systems that are now in use include the American Ground-Based Midcourse Defense system and the Russian A-135 system, which protects Moscow against missile attacks. The geographic scope of strategic defence might be either national or regional (Russian system) (U.S. system).

Theater: targets missiles with a range of around 3 km/s (6,700 mph) or less, known as medium-range missiles. The entire localised area for military operations, often a radius of several hundred kilometres, is referred to in this context as the "theatre." Theater defensive systems' defence range is often on this order. Israeli Arrow missiles, American THAAD, and Russian S-400 are a few examples of theatre missile defences that have been deployed.

Tactical: targets short-range tactical ballistic missiles, which typically move at a speed of less than 1.5 kilometres per second (3,400 mph). The usual range of tactical anti-ballistic missiles (ABMs) is 20 to 80 kilometres (12–50 miles). Examples of tactical ABMs that are now in use are the Russian S-300V and the American MIM-104 Patriot.

Trajectory Phase: Three stages of a ballistic missile's trajectory-the boost phase, midcourse phase, and terminal phase-can be used to intercept it.

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CONCLUSION

As part of the Korean Air and Missile Defense (KAMD) system, which is slated for deployment by the early 2020s, South Korea is also creating a number of homegrown short-range BMD systems. Since 2006, South Korea has been developing KAMD (Korea Air and Missile Defense), a multi-platform, short-range air and missile defence concept, to improve its defence against DPRK SRBMs, cruise missiles, and light aircraft. Similar to PAC-3, the Cheongung Korean medium-range surface-to-air missile (KM-SAM) was developed by South Korea with the goal of intercepting DPRK SRBMs and MRBMs at a low altitude. According to reports, the long-range surface-to-air missile (L-SAM) being developed by Korea until 2023 will function similarly to THAAD in a high-altitude, terminal-phase intercept role against SRBMs and MRBMs.