

How is "Missile Defense" Supposed to Work?

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Here's a brief look at some technological components of the so called "Missile De-fence" system:

Ground-based interceptors:

There are currently three land-based missile interceptors in development. The first is the latest version of the Patriot missile, called the Patriot Advanced Capability-3, or PAC-3. These are used against tactical or theater short- and medium-range missiles traveling up to about 1,500 miles. They are slated for sale to such countries as Taiwan.



The sec-

ond land-based design is called THAAD, for "Theater High Altitude Area Defense." As with the PAC-3, THAAD missiles will be mounted on trucks, but they'll have longer range. They have been tested 11 times with mixed results and are scheduled for deployment in 2007.

The third interceptor is also in testing stages. It would be deployed in fixed silos in Alaska to protect the U.S. against incoming intercontinental ballistic missiles – ICBMs – by shooting down the missiles while they're still in space. The system has performed spottily at best so far, failing three of four tests. Boeing is the lead systems integrator. Lockheed Martin



makes the rockets. Total cost to deploy is supposed to be about \$65 billion, the Ballistic Missile Defense Organization (BMDO) estimates.

Sea-based Interceptor:

The AEGIS missile system, mounted on cruisers and destroyers, is touted as near-ready by the Bush administration. In fact the missile system will need to be adapted for use against ballistic and cruise missiles – both the radar system and the missiles themselves will need upgrading. Under development since 1996, the total cost will likely exceed \$12 billion.



Airborne Laser:

According to proponents, these lasers mounted on Boeing 747s, could be tested and deployed in two years. Contractors hope merely to test it by then.

It is supposed to destroy missiles shortly after launch – during their "boost phase" – while they are big, slow and unable to deploy decoys. The U.S. has paid contractors Lockheed Martin, TRW and Boeing more than \$1.1 billion for research. Total cost is estimated at about \$12 billion.



Space-based Laser (SBL):

This is the grand dream. With SBLs zapping enemy missiles soon after they're launched, the U.S. would rule the world (even more so). So far the concept is speculative and likely to be very expensive, its budget is buried in more mundane



laser projects and, doubtless, several "black" (off-the-books) research operations. The BMDO estimated "acquisition" costs

at \$3 billion, but that doesn't count deployment and support costs, which would be multiples of this number. The SBL weapon is, however, built into the assumptions of military planners who are busy looking toward 2015 and beyond.

Space-based Kinetic Energy Weapons:

Originally dubbed "brilliant pebbles," this system would consist of several thousand orbiting satellites that would track missiles and maneuver themselves into their path to destroy them. The budget is unknown.



Space-based Infrared System:

These low-orbit satellites are supposed to track incoming warheads during their 20-minute flight through space.

In development since the mid-1980s, this system is still at least 10 years and \$12

billion away, despite a congressionally-mandated deployment date of 2006. Troubles involve keeping the satellites cold enough to detect slightly warm warheads after their rockets have shut down, and differentiating between warheads and decoys. Several billion dollars have so far been paid out.



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