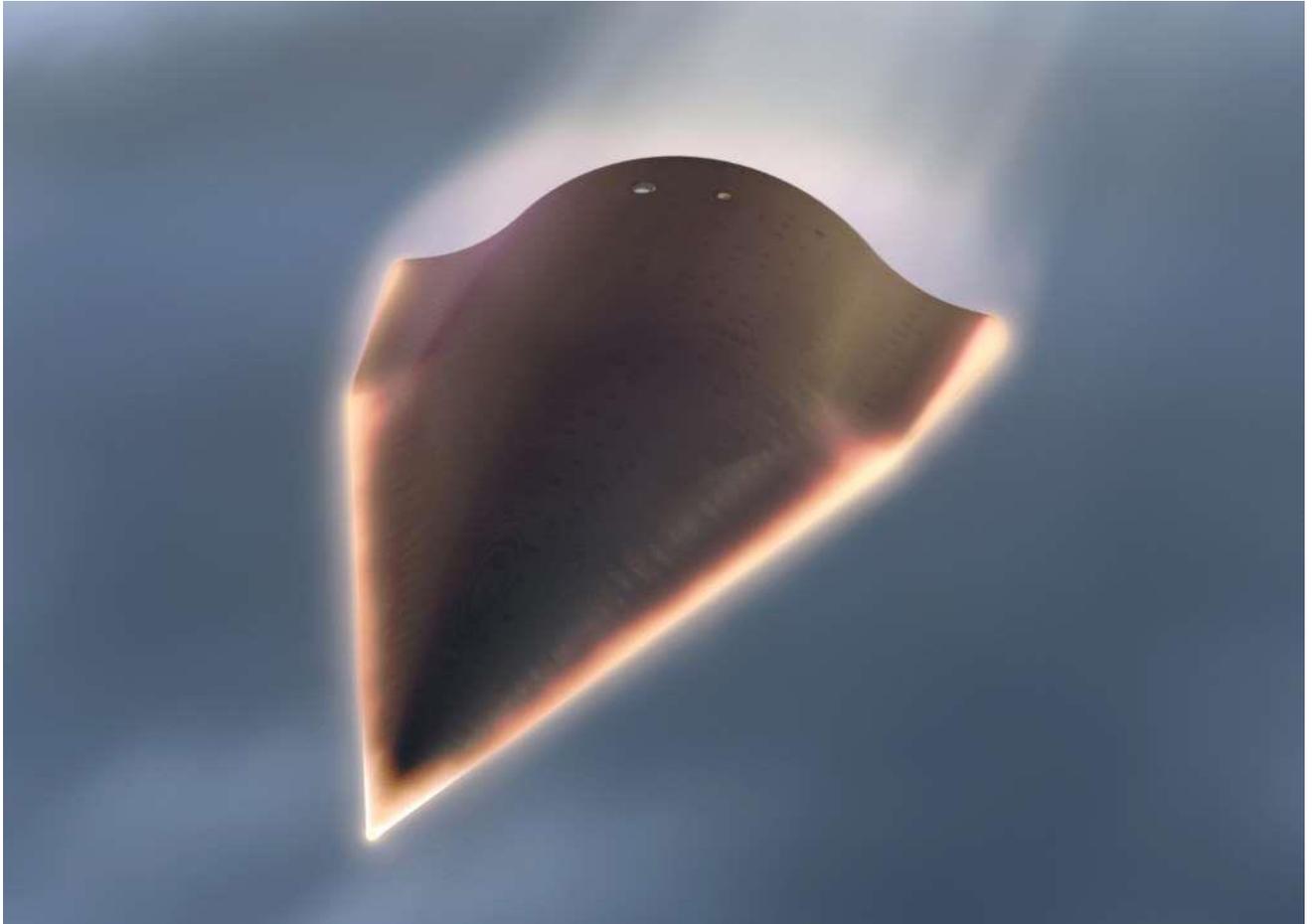


Why the US is testing hypersonic weapons



Christian Science Monitor
Rowena Lindsay 5/25/2015



© DARPA/AP Photo In this artist's rendition showing the Falcon Hypersonic Technology Vehicle 2 (HTV-2). The Falcon HTV-2 is an unmanned, rocket-launched, maneuverable aircraft that glides through the Earth's atmosphere at incredibly fast speeds...

In an effort to develop a defense mechanism that can reach any target in the world in just an hour, the US Air Force is developing hypersonic weapons, which are currently nearing the testing stage. While the technology is not expected to be fully developed for years, some in the international community are worried about the risks of inadvertent nuclear warfare.

Hypersonic weapons are not new – ballistic missiles are hypersonic – but the US is currently researching a new class of hypersonic weaponry called "boost-glide weapons."

These missiles are deployed from beneath the wing of bomber planes and can reach their target with extreme accuracy. They travel at Mach 5, five times the speed of sound, which could get you from New York City to Los Angeles in only 30 minutes.

In past tests, these speeds have caused the engine to melt, so current models are powered by a scramjet, a supersonic engine that, unlike a traditional engine, has few moving parts and instead utilizes an air-breathing propulsion system to keep cool.

"The engine basically melted because it got so hot," Ryan Helbach, an official with the Air Force Research Laboratory, told Military.com. "They didn't actively cool it. So for our program, we actively cooled the engine, which means that along the outside of the engine, we cycled the fuel around it to suck out the heat from the engine, heat up that fuel, and then inject it into the combustor for the scramjet engine."

The speed and accuracy of these weapons would allow for the military to successfully carry out time sensitive attacks. For example, in 1998 Osama bin Laden was known to be in a terrorist training camp in eastern Afghanistan, but by the time missiles were sent he had left the complex and the mission was unsuccessful.

Worried that the US will technologically surpass them, China and Russia have launched similar hypersonic programs, starting a second arms race.

"Certainly, the U.S. is not the only country involved in developing hypersonic weapons," Mica Endsley, the Air Force's chief scientist, told Military.com. "They (China) are showing a lot of capability in this area. The advantage of hypersonics is not just that something goes very fast but that it can go great distances at those speeds."

According to The Guardian, experts are worried that, due to the method of deployment, hypersonic missiles may be confused for nuclear weapons and spark retaliation. Additionally, Foreign Policy magazine reported that America's foray into hypersonic military technology has stirred a debate about whether China should abandon its policy not to use nuclear weapons first.

However, the US is pushing forward. The High Speed Strike Weapon and several other hypersonic weapons developed by Defense Advanced Research Projects Agency (DARPA) are scheduled for testing in 2018 or 2019.

"Our goal is to make sure the Air Force has the knowledge in 2020 or over the next five years to be able to make acquisition decisions using this technology," Kenneth Davidson, manager of the hypersonic materials development at the Air Force Research Laboratory, told Military.com. "Our goal is to provide a capability to stand off, launch these vehicles off the aircraft to hit time-critical dependent targets ... And ultimately from a manufacturing standpoint, it's got to be affordable."