Proposed U.S. Missile Defense Assets In Europe

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Introduction

Some of the world's most dangerous and unpredictable regimes either have already acquired, or are attempting to acquire, weapons of mass destruction. These regimes are also developing and/or acquiring ballistic missiles of increasing ranges, payloads, lethality, and sophistication as a means of delivery. In the future, these regimes could use these asymmetric weapons to pursue their objectives through force, coercion, and/or intimidation as they have done in the past.

Today's ballistic missile threat from potentially hostile states is fundamentally different from Cold War era threats and risks. In response, the United States is fielding limited and purely defensive capabilities. In our comprehensive strategy to combat weapons of mass destruction, missile defense is just one element of a multi-faceted approach, which includes diplomacy, export controls, threat reduction assistance, nonproliferation regimes, and counter-proliferation programs. At the same time, missile defense is our ultimate insurance policy if these other elements of our strategy fail. History has taught us that, despite our best efforts, the free world will be challenged by military surprises as well as failures in diplomacy, intelligence, and deterrence. Given this reality, missile defenses have become highly desirable because they both reinforce deterrence and hedge against its failure.

Because of the expanding ballistic missile threat, it is essential that we develop and deploy missile defenses capable of protecting not only the United States and our deployed forces, but also our friends and allies. Trans-atlantic security is indivisible. We have learned from experience that decoupling our defenses from Europe is very much against the interests of the United States and our European allies. If Europe is not secure, the United States is not secure. To ensure our common security, we need defenses stationed and operational in Europe **before** a threat fully emerges. For this reason, negotiations are currently underway to locate up to ten silo-based long-range missile defense interceptors in Poland and a midcourse tracking and discrimination radar in the Czech Republic. These defensive interceptors contain no explosives, and destroy attacking reentry vehicles by kinetic energy, that is, a body-on-body collision outside of the atmosphere between the kinetic kill interceptor and the reentry vehicle.

The Threat Is Real And Growing

The pace of ballistic missile proliferation, and the threat this creates, is rapidly increasing. Consider these trends:

- In 1972, only nine states possessed ballistic missiles
- In 1990, as the Cold War was drawing to a close, 16 states possessed ballistic missiles of varying ranges
- By the end of 2006, the number increased to 25 states

The number of states that currently possess medium-, intermediate-, and/or intercontinental-range ballistic missiles (missiles that can reach our friends and allies, and in some cases the United States itself) ***has increased from five to nine***. Clearly, the international security environment is more complex and less predictable since the fall of the Berlin Wall in 1989 and the collapse of the Soviet Union in 1991.

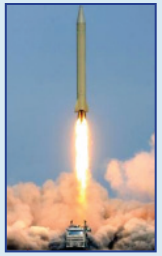
Of particular concern are the ballistic missile development and testing programs underway in North Korea and Iran, and their related proliferation activities.

On January 11, 2007, Lieutenant General Michael Maples, Director of the U.S. Defense Intelligence Agency, testified to the U.S. Senate that "North Korea has an ambitious ballistic missile development program and has exported missiles and missile technology to other countries, including Iran." General Maples also pointed out that North Korea continues to develop and test the Taepo Dong 2 intercontinental ballistic missile and nuclear weapons, as evidenced by their well-publicized series of missile launches on July 4, 2006, and their nuclear test in October 2006.

On November 2, 2006, during the "Great Prophet II" exercise, Iran launched numerous short-range rockets as well as short- and medium-range ballistic missiles. Among the missiles launched was the Shahab-3, which has a 1,300 kilometer range and is capable of reaching Turkey and Tel Aviv.

Great Prophet II Starts With Launches From Jalnabad

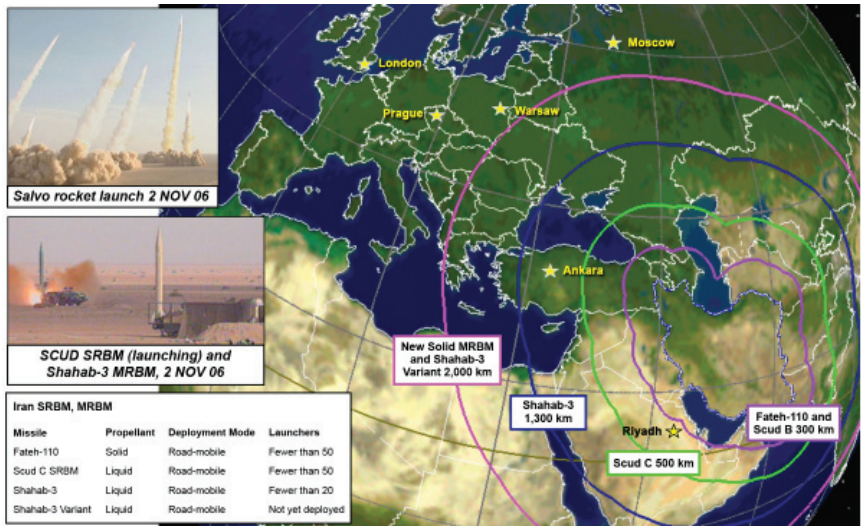
- Missiles launched as part of exercise during early hours of November 2, 2006
- Iranian TV showed:
  - Scud-class SRBMs, Shahab MRBM.
  - Multiple launch of six rockets and/or missiles
- Reported by Iranian government as "dozens" of launches with claims of cluster warheads



The Iranian missile development program has received considerable assistance from Russian, Chinese, and North Korean entities. The Shahab-3 is based on the North Korean No Dong missile. Iranian officials have publicly claimed that a 2,000 kilometer range variant of the Shahab-3 is under development as well as a new solid-propellant medium-range ballistic missile (MRBM). That would provide Iran the capability to strike significant parts of southeastern and central Europe, Turkey, Israel, and U.S. and allied military bases in the Persian Gulf.

Iran is also seeking to develop medium-range ballistic missiles (MRBMs) of increasing ranges, intermediate-range ballistic missiles (IRBMs), and possibly intercontinental ballistic missiles (ICBMs). The U.S. Intelligence Community assesses that with continued foreign assistance, Iran could be able to develop an ICBM capable of reaching the United States and all regions of Europe before 2015. Iran is also developing space launch vehicles – a key building block for an ICBM.

Iranian Missile Threat



*A **ballistic missile** is a weapon that is launched from a fixed or mobile platform and follows a predictable arc towards its intended target. Ballistic missiles can travel anywhere from short distances (as little as 100 kilometers), to very long distances (10,000 kilometers or more). Depending on the missile design and sophistication, ballistic missiles can be armed with conventional explosives or weapons of mass destruction (nuclear, chemical, or biological payloads).*

Noting the strong international consensus regarding the missile threat, NATO Secretary General Jaap de Hoop Scheffer stated after the April 19, 2007, North Atlantic Council meeting in Brussels, "there is absolutely a shared threat perception between the allies. Allies all agree that there is a threat from ballistic missiles."

Benefits Of Ballistic Missile Defense In Europe

The deployment of U.S. missile defense assets in Europe would provide:

- An improved capability to defend the United States against ballistic missile attack from the Middle East
- The capability to extend defensive coverage to Europe against longer-range ballistic missiles which would enhance the collective security of the NATO Alliance, strengthen trans-atlantic unity, reaffirm America's commitments to European security, and avoid the decoupling of European and American security interests
- An opportunity for technology sharing and cost savings that can substantially enhance development of the envisioned NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) program
- An opportunity for NATO to potentially utilize the U.S. sensor infrastructure for use in a future NATO defensive system for protecting population and territory – if NATO approves such a military requirement – against ballistic missiles of all ranges and increasing sophistication
- Increased situational awareness and information sharing for Host Nations, NATO, and its Member States

Defense Coverage Against Long-Range Iranian Missiles

Without Proposed U.S. Missile Defense Assets In Europe

- An additional option to deal with ballistic missile attacks besides offensive retaliation or military preemption
- The ability to dissuade potentially hostile states from indigenous development or foreign acquisition of ballistic missiles in the first place, by undermining their military utility and thus promoting European and U.S. nonproliferation goals
- Enhanced deterrence against attempts to coerce or intimidate European allies and friends

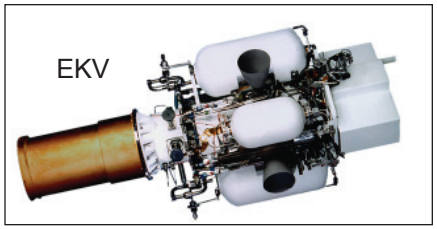
Proposed U.S. Missile Defense Assets In Europe

The proposal to deploy components of the U.S. Ballistic Missile Defense System (BMDS) to Europe consists of:

- European interceptor site
  - Up to ten silo-based long-range interceptors located in central Europe (2011-2013)
- European midcourse radar
  - Relocation of a narrow-beam, midcourse tracking radar currently used in our Pacific test range to central Europe (2011)

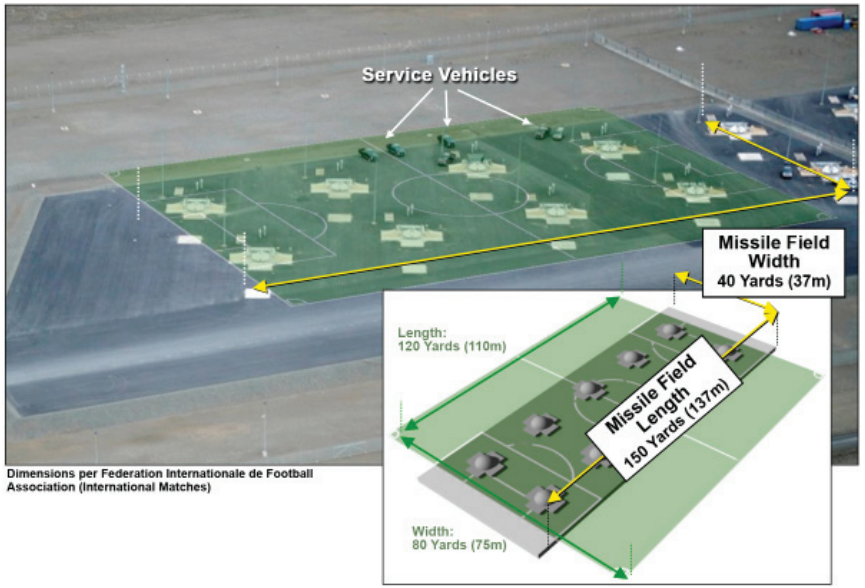
Ten interceptors proposed to be based in Poland. These ground-based interceptors, nearly identical to those in Alaska and California, would be housed in underground silos in an interceptor field about the size of a football field. As with the interceptors based in Alaska and California, these interceptors are designed only for defensive purposes and employ small hit-to-kill vehicles (weighing about 75 kilograms) instead of explosives to destroy their targets at collision speeds in excess of 7 km per second and at more than 200 km above the earth's surface.

The interceptors planned for Poland are nearly identical to the three-stage interceptors based in the U.S. except that they are a two-stage variant that is quicker, lighter, and better suited for the engagement ranges and timelines for Europe. The silos that house the ground-based interceptors have substantially smaller dimensions (e.g., diameter and length) than those used for offensive missiles, such as the U.S. Minuteman III ICBM. Any modification would require extensive, lengthy, and costly changes that would be clearly visible to any observer.



The ground-based interceptors are comprised of a booster vehicle and an exoatmospheric kill vehicle (EKV). Upon launch, the booster flies to a projected intercept point and releases the EKV which then uses on-board sensors (with assistance from ground-based assets) to acquire the target ballistic missile. The EKV performs final discrimination and steers itself to collide with the enemy warhead, destroying it by the sheer kinetic force of impact.

Future European Missile Site – Size Comparison



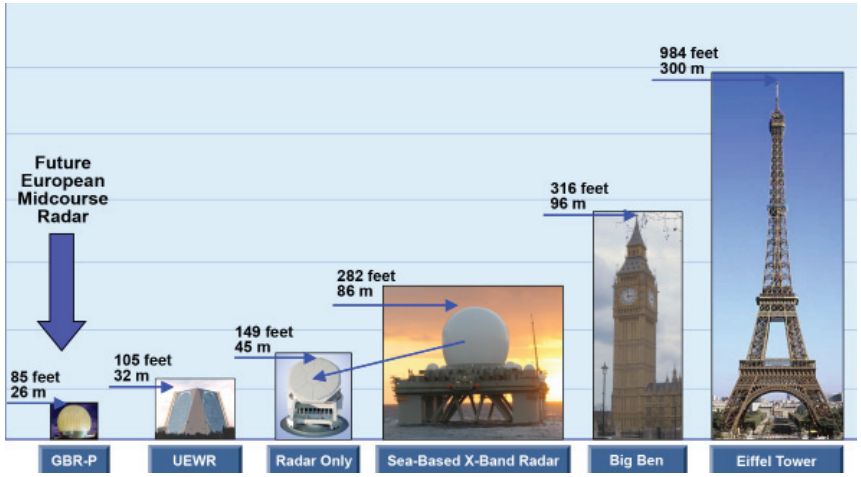
A Midcourse Radar proposed for deployment to the Czech Republic. This X-band radar will be optimized to point its narrow beam at Iranian ballistic missile threats in flight. This is not a surveillance radar that scans continuously through 360 degrees, but instead uses information from early warning satellites and other transportable sea- and land-based sensors (such as mobile forward-based X-band radars placed closer to ballistic missile threat locations for earlier acquisition and precise tracking) to pinpoint or "cue" its very thin beam to find and track ballistic missiles after they are launched. The emissions of this radar will not endanger people as the beam is extremely narrow (diameter of a couple of meters at a distance of 25 km) and must be elevated from ground level to acquire missiles in flight. X-band radars are used at most airports and do not pose a health risk. The X-band radar will not operate continuously 24 hours a day, 7 days a week.

The information obtained by this radar will be used to identify and distinguish the missile warhead from other missile parts (such as separated booster rockets) and potential countermeasures. Most importantly, it will be used to guide interceptor missiles to the projected trajectory of the ballistic missile warhead.

The radar proposed for deployment to the Czech Republic is currently located at Kwajalein Atoll in the Marshall Islands (central Pacific Ocean) where it has been used to support missile defense tests over the past decade. Upon completion of negotiations and site preparation, it will be relocated to Europe. It is important to note that this radar has successfully operated without any harmful effects to the people in the nearby family housing area or the children in the nearby school.

Command and control support composed of a network of computers and communications equipment. This network, part of the larger U.S. command and control system, transmits and receives data on threat missile launches, missile flight profiles, and projected target locations, that enable political and military leaders to determine when and where to launch weapons to intercept them. The system is designed to rapidly provide a wide range of information to decision makers because of the short distances in Europe and the great speed of ballistic missiles that require threat assessment and interceptor launch decisions in just minutes.

Comparison Of Midcourse Radars



The command and control system enables approved decision makers and the operational crews to be alerted to ballistic missile launches, understand and assess the situation, make informed decisions, feed information to interceptors to find and destroy incoming ballistic missile warheads, and then evaluate mission success.

Proposed U.S. Assets in Europe Supported by the U.S. Ballistic Missile Defense System (BMDS)

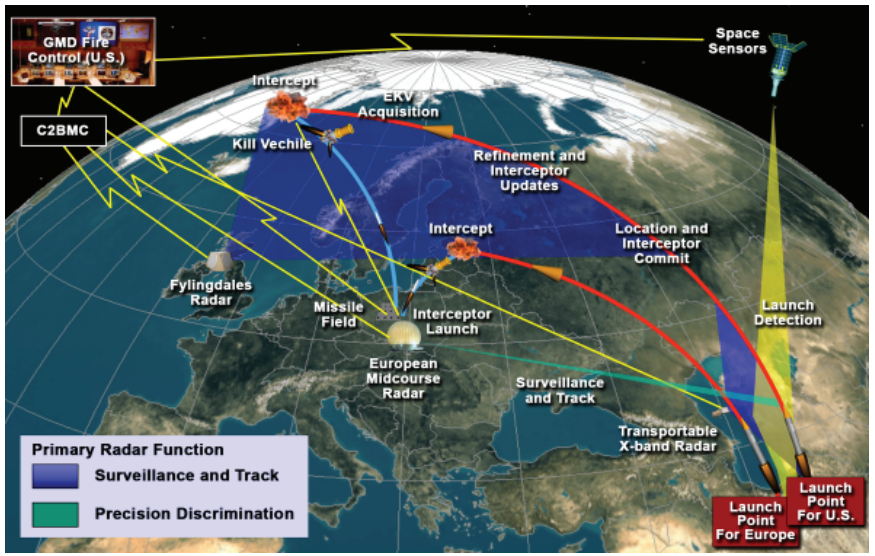
The siting of ground-based interceptors in Poland and a midcourse radar in the Czech Republic is supported by other additional existing and developing assets of the global BMDS. The BMDS provides an integrated network of sensors, short- and medium-range interceptors, and command and control capabilities that can enhance the proposed U.S. European missile defense assets. The information required to assess and make interceptor launch decisions is enabled by the command and control and communications network provided by the global BMDS system, which is incorporating, assessing, and distributing crucial track information that is obtained by satellites, and/or by land-based and sea-based radars and sensors.

U.S. PATRIOT, Aegis/SM-3, and Terminal High Altitude Area Defense (THAAD) could be made available to provide augmenting coverage for short- and medium-range threats. These assets could be used to support emerging NATO and national capabilities as needed to ensure layered coverage for all European nations requiring such protection.

Transportable forward land-based radars could provide an enhancement to the capabilities of the proposed European interceptor and midcourse radar sites. This type of radar is a high-resolution, X-Band class, phased-array radar based upon the THAAD radar hardware and software design. It is designed to be air transportable, roll-on/roll-off ship transportable, and rail transportable. The value of this radar is that when deployed closer to the threat, it provides earlier acquisition and more precise tracking data that expands coverage areas and extends ranges for more sophisticated engagement strategies. This type of radar is currently deployed in Japan. While deployment has not been proposed to potential host nations closer to the threat in the Middle East, an additional X-band radar will be available to support (as needed) proposed Europe-based U.S. missile defense assets.

- Forward-based radar
  - Available to deploy to area closer to Iranian threat to provide earlier detection, cueing, and enhanced tracking information

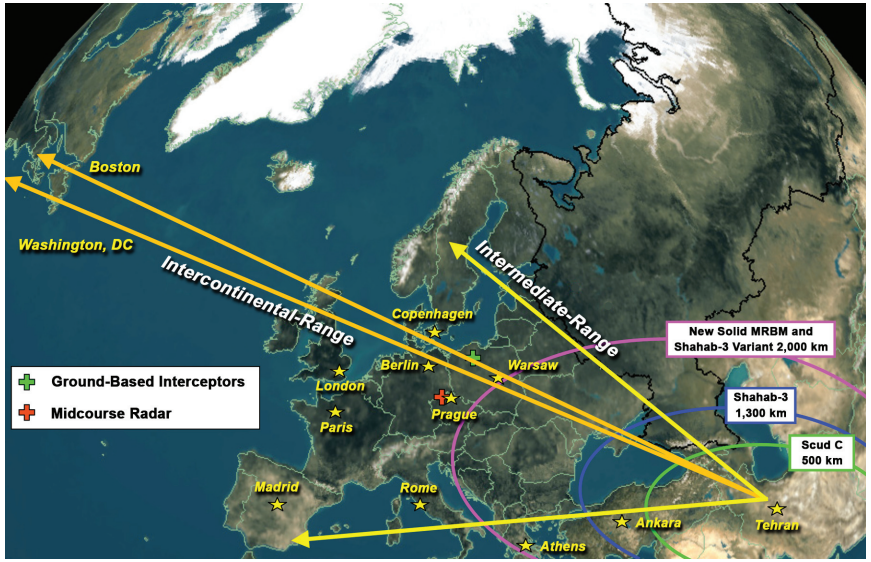
European Components – How It Works (Notional)



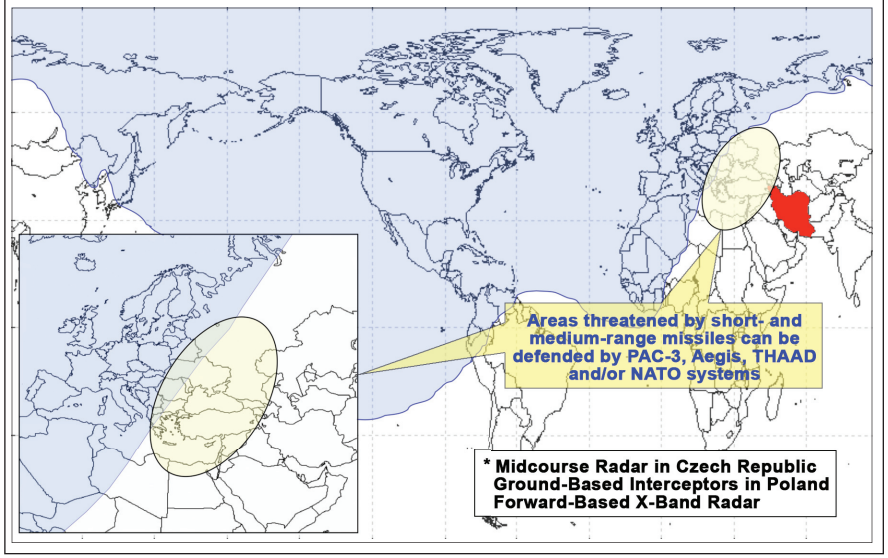
Why Poland and the Czech Republic?

- U.S. missile defense interceptors in Alaska and California do not provide protection for Europe
- Technical analysis shows that Poland and the Czech Republic are the optimal locations for fielding U.S. missile defense assets in Europe:
  - Provides defensive coverage for the majority of Europe from longer-range ballistic missiles launched from the Middle East
  - Provides redundant coverage for the U.S. against ICBMs launched from the Middle East
- Placing the interceptor field in Poland and the radar in the Czech Republic maximizes the defensive coverage of both Europe and the United States
- As the following graphic demonstrates, Poland and the Czech Republic are geographically well located on the European continent to defend against longer-range ballistic missiles

Poland And Czech Republic Basing Maximizes European Coverage Against Longer-Range Ballistic Missile Threats



Defense Coverage Against Long-Range Iranian Missiles
With Proposed U.S. Missile Defense Assets in Europe*



Addressing Concerns

1. Why the sudden concern?

Reality and timing of Iranian threat

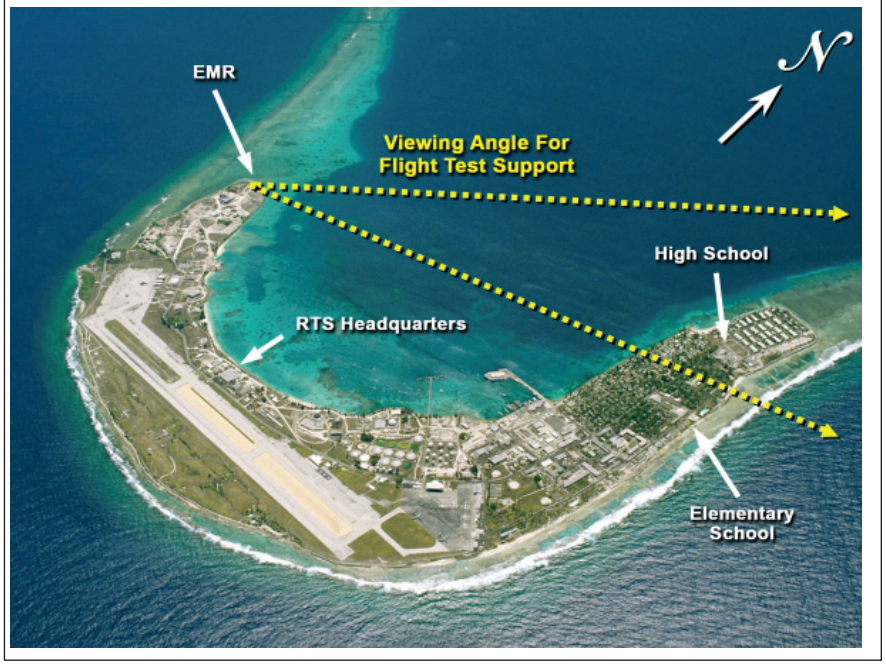
- *Defenses take years to deploy. Work on missile defense in Europe must begin now in order to meet the growing threat from Iran*
- *Iran has demonstrated the capability to develop, and intent to use, ballistic missiles of increasingly longer range (they currently have short-range ballistic missiles (SRBM) and medium-range ballistic missile (MRBM) technology)*
- *Public announcement of space-launch vehicle test success (U.S. cannot confirm)*
- *In 1998, intelligence experts indicated North Korea was years away from testing multi-stage rockets; the next month, they tested this capability. We cannot afford to be surprised by waking up one morning and discovering that Iran has an ICBM capability*

2. How do we know the system is effective and safe?

In 2003, ballistic missile defenses consistently demonstrated the ability to effectively intercept short-range enemy missile attacks during Operation Iraqi Freedom. Patriot PAC-2 and PAC-3 intercepted nine out of nine short-range ballistic missiles. Defenses against intermediate- and long-range attacks have not yet been needed in war. Through ground and flight tests, and modeling and simulation, such defenses have been repeatedly and successfully tested over the past decade. Hit-to-kill technologies have been demonstrated to work, and the ballistic missile defense system has been successfully integrated. Over the last few years, the Missile Defense Agency has had 17 successes in the last 18 flight-tests in the Patriot PAC-3, the Aegis Standard Missile-3 (SM-3), THAAD, and the Ground-based Midcourse Defense (GMD) programs. Since 2001, there have been 27 out of 35 successful hit-to-kill midcourse and terminal intercepts.

Safety is very important when fielding ballistic missile defenses. X-band radars have been operating for decades to observe weather and track aircraft and satellites. The beam from the radar is only several meters wide at 25 kilometers above the ground and is pointed into the sky and away from people on the ground. In fact, the U.S. has safely placed an X-band radar on the Kwajalein Atoll only a short distance from buildings that house workers and school children.

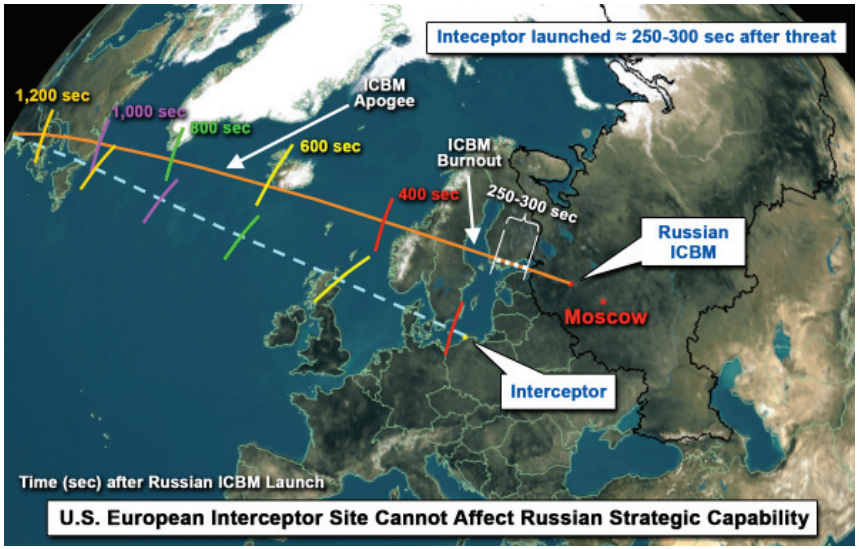
Kwajalein Island



3. Would these missile defense capabilities threaten Russia?

No. The United States has kept, and is continuing to keep, Russia informed about U.S. missile defense policy, plans, and programs. We have used both bilateral diplomatic and Department of Defense-Ministry of Defense channels, as well as the multilateral NATO-Russia Council channel. Any prospective U.S. missile defense assets deployed in Europe would not be directed at Russia. Instead, these central European locations provide optimal defensive coverage against threats launched from the Middle East involving a limited number of intermediate- or intercontinental-range ballistic missiles launched at either Europe or the United States. U.S. missile defense deployments in Europe would not undermine Russia's strategic nuclear forces. Under the Moscow Treaty, Russia is permitted between 1,700-2,200 strategic nuclear warheads. Regardless of the location of any possible U.S. defensive assets, Russia's large strategic offensive force could overwhelm the U.S. system's limited number of deployed interceptors. Furthermore, in theoretical one-on-one engagements, U.S. interceptors in central Europe would not be capable of

Interceptors Cannot Catch Russian Missiles



intercepting Russian ICBMs launched at the United States. As the graphic above demonstrates, there would not be sufficient time to detect, track, and intercept ballistic missiles launched from western Russia toward the United States. Fielding U.S. missile defense capabilities in Europe will not trigger an arms race between Russia and the United States. We have proposed transparency and confidence-building measures to Russia. Additionally, in April 2007, senior U.S. officials tabled a comprehensive proposal for bilateral missile defense cooperation with Russia.

4. Would the X-band radar in the Czech Republic affect the use of cell phones, radios, garage door openers, and televisions?

No. Such personal devices operate outside the X-band frequency and would not be affected.

5. Would an intercept of a ballistic missile attack over Europe create debris that would fall on people in Europe?

Most debris from a successful destruction of a ballistic missile attack would burn up during reentry into the Earth's atmosphere. Another way to look at this issue is to consider that any harm caused by this debris would pale in comparison to a successful nuclear attack on a European city.

Intercept Debris

- *Intercept debris is minor compared to an intact Weapon of Mass Destruction (WMD) warhead hitting a major population center*
- *An intercepted warhead produces very little debris*
  - *Closing speed between the interceptor and warhead is more than 7 km per second*
  - *Intercept occurs at an altitude of more than 200 km, well outside the earth's atmosphere*
  - *Resulting kinetic energy vaporizes much of the reentry vehicle, warhead, and kill vehicle*
- *U.S. flight tests have shown that very little debris reaches the earth – pieces average no more than 21 cm long*
- *Probability of any casualty on the ground is very low*
  - *3 in 1,000 intercepts to 1 in 2.5M intercepts depending on population density*

6. Can a ballistic missile defense capability have a deterrent effect?

Yes. Ballistic missile defense can work to deter the enemy because it reduces the political and military utility of offensive missiles. For example, if Allied deployed forces or civilian populations were defenseless, Iran may view its ballistic missile arsenal as an unchecked means to coerce other countries and/or even attack them. If Iran believes, however, that its ballistic missile attack might be defeated by a defensive system, it might be deterred from building up and using that arsenal to project its national power. Missile defenses are not a replacement for an offensive deterrent capability; they instead constitute an additional and critical dimension of contemporary deterrence. Also, over the longer term, missile defenses discourage the proliferation of ballistic missiles as the means of delivering weapons of mass destruction by undermining the military utility of these ballistic missiles.

7. Will the U.S. missile defense assets in Europe provide coverage to all countries in Europe?

- *U.S. missile defense systems in Europe would have the capability to extend coverage to all European NATO Allies at risk from long-range ballistic missile attack from the Middle East. Additionally, there are several countries (e.g., Greece and Turkey) that are not at risk of a long-range missile attack from Iran due to their proximity to the threat. Rather, they are vulnerable to short- and medium-range attack, for which Iran has demonstrated capabilities*
- *The U.S. European assets could, in the future, be offered by the United States, Poland, and the Czech Republic as a contribution to a NATO capability to defend against long-range threats, if NATO approves a military requirement to acquire a missile defense capability to protect population and territory against ballistic missiles of all ranges*
- *The future NATO ALTBMD capability or any NATO Member State's missile defense system could complement the U.S. European missile defense deployments by providing coverage against shorter range threats*
- *Current NATO Air Command and Control System (ACCS) architecture and the U.S. BMDS C2BMC systems have been designed to be compatible, easing their integration*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