**Missile Defense Agency Mission**

To develop and deploy a layered Ballistic Missile Defense System to defend the United States, its deployed forces, allies, and friends from ballistic missile attacks of all ranges and in all phases of flight.

**Missile Defense Capability Globally Deployed**
Historical Framework 1983–2015

<table>
<thead>
<tr>
<th>Soviet Threat</th>
<th>Rogue State Threat</th>
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<tbody>
<tr>
<td>1983</td>
<td>1989</td>
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<td>1993</td>
<td>2001</td>
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<td>2009</td>
<td>2015</td>
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</tbody>
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**Strategic Defense Initiative Organization**
- 1983–1993
- Phase I
- Global Protection Against Limited Strikes

**Ballistic Missile Defense Organization**
- 1993–2001
- Theater Missile Defense

**Missile Defense Agency**
- 2001–2015
- National Missile Defense

**Program**
- Research
- Strategic Defense System
- Phase I

**Ballistic Missile Defense System**
- Defense of U.S. and deployed forces, allies (space, ground, sea BMD)
- Defense of overseas forces, allies (ground, sea BMD)
- Defense of U.S. forces, allies (ground, sea BMD), and development of U.S. defenses (no deployment)
- Deployment of limited missile defenses to protect homeland, U.S. forces, allies and friends using a single, integrated system for layered protection
Approximate Ranges

- Intercontinental Ballistic Missile (ICBM): > 3,410 miles
- Intermediate-range ballistic missile (IRBM): 1,860 to 3,410 miles
- Medium-range ballistic missile (MRBM): 620 to 1,860 miles
- Short-range ballistic missile (SRBM): < 620 miles
Ballistic Missile Ranges - Intermediate-, Medium- and Short-Range

- **Intermediate-Range Ballistic Missile (IRBM)**
  - Range: 2,400 miles

- **Medium-Range Ballistic Missile (MRBM)**
  - Range: 1,100 miles

- **Short-Range Ballistic Missile (SRBM)**
  - Range: < 620 miles

Approximate Ranges:
- IRBM: 1,860 to 3,410 miles
- MRBM: 620 to 1,860 miles
- SRBM: < 620 miles

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The Increasing Ballistic Missile Threat

- Taepo Dong-1 Launch, August 1998
- North Korean Taepo Dong-2 SLV Launch, December 2012
- Iranian Ashura 2-stage solid MRBM launch 2012
- Iranian Safir SLV on launch pad, February 2015
- North Korean Mobile Long-Range Missile on Parade, 2015
- North Korean KN08 ICBM Launcher on Parade, 2012
- North Korean Taepo Dong-2 SLV Launch, February 2016
Today’s Ballistic Missile Defense System

SENORS
An effective layered defense incorporates a wide range of sensors to detect and track threat missiles through all phases of their trajectory. Satellites and a network of land- and sea-based radars provide worldwide sensor coverage.

BOOST/ASCENT
Defense Segment
Potential New Technologies

MIDCOURSE
Defense Segment

SM-3 Standard Missile-3

TERMINAL
Defense Segment

AEGIS Sea-Based Terminal

AEGIS Ashore
Vertical Launch System

C2BMC
Command and Control, Battle Management, and Communications

The Command and Control, Battle Management, and Communications (C2BMC) program is the hub of the Ballistic Missile Defense System (BMDS). It is a vital operational system that enables the U.S. President, Secretary of Defense and Combatant Commanders at strategic, regional and operational levels to systematically plan, execute and manage ballistic missile defense operations, to collectively see the battle develop, and to dynamically manage designated networked sensors and weapons systems to achieve global and regional mission objectives.

THE SYSTEM OF ELEMENTS

NMCC
USSTRATCOM
USNORTHCOM
USPACOM
USEUCOM
USCENTCOM
Improving Homeland Defense Capabilities

Multiple factors influence U.S. Northern Command Shot Doctrine and the number of GBIs used to prosecute an engagement. Missile Defense Agency is addressing the following factors:

- **GBI Reliability**: Improved Interceptor Reliability and Redesigned Kill Vehicle
- **Discrimination**: New / Improved Sensors, Battle Management, Fire Control, and Kill Vehicle Improvements
- **Battlespace**: Re-engagement Firing Strategy

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**Graph:**

- Increased Capacity: 44 GBIs
- Improved GBI CE-II KV Performance
- Near Term Discrimination
- Clear UEWR
- Ft Drum IDT
- OPIR Boost Phase
- Selectable 2-Stage / 3-Stage Booster
- LRDR
- RKV Deliveries
- Replace CE-I’s
- Mid Term Discrimination
- Threat
- Re-engagement and Post Intercept Assessment
- C3 Deliveries
- Replace CE-II’s
- Far Term Discrimination
- MOKV Deliveries

**Legend:**

- C3 – Configuration 3 Boost Vehicle
- CE – Capability Enhancement
- GBI – Ground Based Interceptor
- IDT – In-Flight Interceptor Communications System (IFICS) Data Terminal
- KV – Kill Vehicle
- LRDR – Long Range Discrimination Radar
- MOKV – Multiple Object Kill Vehicle
- OPIR – Overhead Persistent Infrared
- RKV – Redesigned Kill Vehicle
- UEWR Upgraded Early Warning Radar

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European Phased Adaptive Approach Update

Turkey, AN/TPY-2 Radar Deployment

Rota Spain

USS Donald Cook

USS Ross

USS Porter

USS Carney

Mooresville, New Jersey

Deveselu, Romania (EPAA Phase II) (2015)

Pacific Missile Range Facility (PMRF) HI

Redzikowo, Poland (EPAA Phase III) (2018)

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Building Warfighter Confidence

- Reliability
  - Discriminate / Assess
    - Multiple Kill Vehicles
      - Reduce shots per credible object
        - Radar Coverage
          - Persistent Midcourse Tracking
            - Dual Phenomenology (RF & EO/IR)
              - Advanced Sensors
                - Boost Phase Intercept
      - Reduce number of credible objects
      - Increasing Warfighter Confidence

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Missile Defense Future

Space Operations

Discrimination

Multiple Object Kill Vehicle

Laser Experiments

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International Partners
Summary

• Balance of capabilities, requirements, and risks to deter aggression, project power, and protect U.S. and allied interests

• Deployment of capabilities ongoing to respond to warfighter requirements

• Developing, building and using a global C2 and sensor network

• Operationally realistic, integrated testing

• Continued cooperation with allies and partners for interoperable missile defense

Missile Defense Capability – Globally Deployed