Aegis Ballistic Missile Defense

2021 MDA University Innovation Summit

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Missile Defense Agency
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Today’s Ballistic Missile Defense System
- Aegis BMD Contributions -
Aegis BMD’s Role in the BMDS

Homeland and Regional Defense
- Long Range Surveillance & Track Function Detects and Tracks in Early Ascent Phase Providing Forward Based BMDS Sensor Support

Regional Defense
- Ascent and Midcourse Engagement Capability Defeats Short, Medium & Intermediate Range Ballistic Missiles
- Terminal Defense Capability Defeats Shorter Range Missiles

Defending Against Homeland and Regional Threats in all Phases of Flight
Sea-Based Weapon Systems Program

- Launch on Remote (Ship to Ship) (2006)
- Launch on Remote (STSS-D) (2013)
- Launch from Ashore (2014)
- Engage on Remote (2018)
- U.S. DDG Flight III with Baseline 10 and SPY-6 Air and Missile Defense Radar (AMDR) (2024)

Aegis Ashore
- Hawaii Test Site (2014)
- Romania (2015)
- Poland (2022)

Radar System AN/SPY-1 D(V)

- Open Architecture (2014)

Standard Missile (SM)-3
- BIK IIA (2020)

Sea-Based Terminal Standard Missile (SM)-6
- Dual I (2016)
- Dual II (2020)
- IAU (2024)
## Aegis BMD SM-3 Evolution

Spiral Development with Incremental Capability Improvements

<table>
<thead>
<tr>
<th>SM-3 Blk I/IA</th>
<th>SM-3 Blk IB/IB TU</th>
<th>SM-3 Blk IIA</th>
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<tr>
<td><strong>Kinetic Warhead (KW)</strong></td>
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<td>1-Color Seeker</td>
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<td>Pulsed Solid Divert / Attitude Control System (SDACS)</td>
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<td>KW</td>
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<td>2-Color Seeker</td>
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<td>Throttletable Divert / Attitude Control System (TDACS)</td>
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<td>Large Diameter KW</td>
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<td>21” Clamshell Nosecone</td>
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<td>2 Color Seeker</td>
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<td>High Divert DACS</td>
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<td>Increased Operating Time</td>
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<td><strong>2nd and 3rd Stage</strong></td>
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<td><strong>1st Stage</strong></td>
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<td>MK 41 Vertical Launching System (VLS)</td>
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- Deployed Since 2004
- SM-3 Blk IB Deployed Since 2012
- SM-3 Blk IB TU First Intercept 2015
- First Intercept 2017
What types of technologies are we exploring now?

- Advanced Electronics
- Artificial Intelligence
- Command, Control, Communications, Computers, and Intelligence (C4I)
- Cyber
- Electronic Warfare
- Energy and Power
- Materials and Manufacturing Processes
- Sensors
- Space
- Weapons Technology
- Quantum Science

Applied Technologies Improves our System’s Performance