

**AEGIS
BALLISTIC
MISSILE
DEFENSE**



*Aegis BMD Update to the
National Defense Industrial Association &
Strike, Land Attack, and Air Defense Division
14 July 2011*



Purpose

Aegis BMD

Aegis Ballistic Missile Defense Update with Insight into the State of the European Phased Adaptive Approach and Aegis Ashore



U.S. Phased Adaptive Approach Contributes To NATO Missile Defense

Aegis BMD

Phase 1 (By 2011)

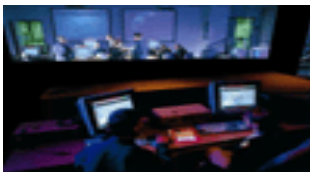
Initial capability against SRBMs, MRBMs, and IRBMs, enhanced homeland defense



Aegis BMD 3.6.1 with SM-3 IA



AN/TPY-2 (FBM)

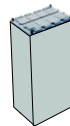


C2BMC AOC Ramstein

ALTBMD Interim Capability

Phase 2 (By 2015)

Robust capability against SRBMs and MRBMs



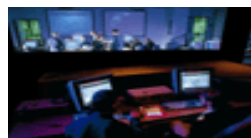
Aegis Ashore 5.0 with SM-3 IB (one site)



Aegis BMD 4.0.1/5.0 with SM-3 IB



AN/TPY-2 (FBM)



C2BMC Updates

ALTBMD Lower Tier

Potential EPAA Enhancements



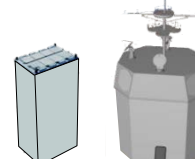
THAAD

Phase 3 (By 2018)

Robust capability against IRBMs



Aegis BMD 5.1 with SM-3 IIA



Aegis Ashore 5.1 with SM-3 IB/IIA (two sites)



AN/TPY-2 (FBM)



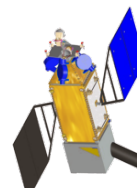
C2BMC Updates

ALTBMD Upper Tier

Potential EPAA Enhancements



THAAD



PTSS



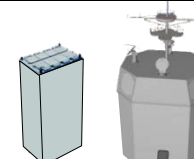
ABIR

Phase 4 (By 2020)

Early intercept capability against MRBMs and IRBMs; and ICBMs from today's regional threats



Aegis BMD 5.1 with SM-3 IIA



Aegis Ashore 5.1 with SM-3 IIB (two sites)



AN/TPY-2 (FBM)



Enhanced C2BMC

Potential EPAA Enhancements



THAAD



PTSS



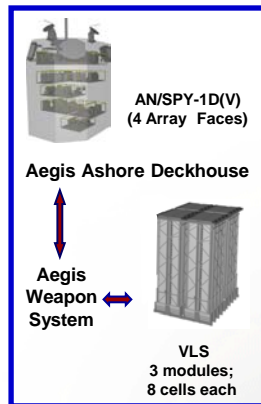
ABIR



Aegis BMD Program

Aegis BMD

- Autonomous (2004)
- Launch on Remote (Ship to Ship) 2006
- Launch on Remote (BMD Sensors) 2008
- Engage on Remote

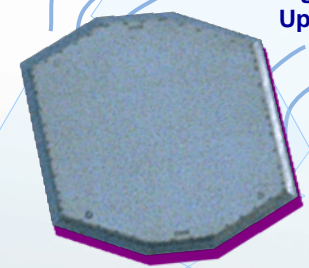


Aegis Ashore 2015
Hawaii Test Site 2013

Open
Architecture 2012



Aegis Ballistic Missile Defense
Signal Processor (BSP)
Upgrade 2010 (Testing)



Radar System
AN/SPY-1



SM-3

Bik I / IA / IB
2004/2006/2013



Bik IIA
2018



Bik IIB
2020

Sea-Based
Terminal



SM-2
Bik IV
2008
Near
Term



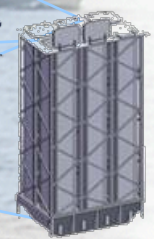
SM-6
Missile
2015
Incr 1



SM-6
Missile
2018
Incr 2



Vertical
Launching
System Mark 41



SM-3 BIK IIB
VLS Concept

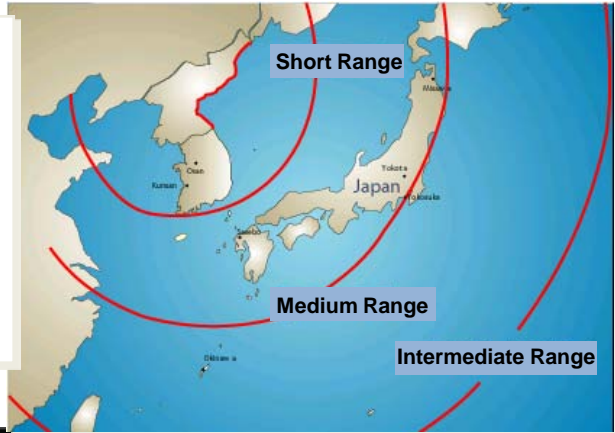


Aegis BMD's Role In The BMDS



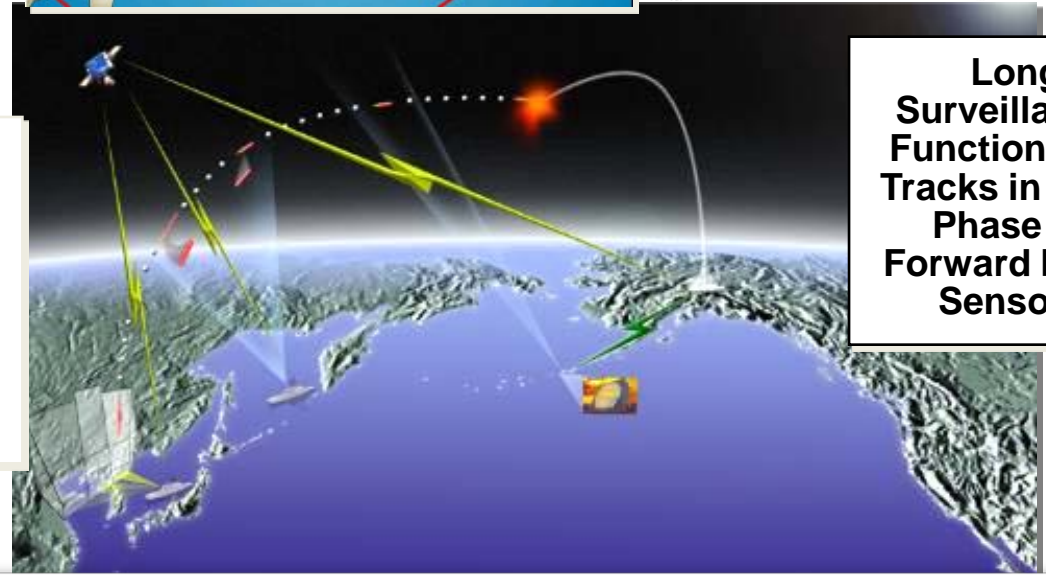
Aegis BMD

Ascent/Midcourse Engagement Capability Defeats Short, Medium & Intermediate Range Ballistic Missiles



Terminal Defense Capability Defeats Shorter Range Ballistic Missiles

Future Adding Early Intercept Capability
Anti-ICBM w/SM-3 Blk IIB (Aegis Ashore)



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

Proven Against Single Salvo, Dual Salvo & Separating Targets



Aegis BMD Fleet Today

(July 2011)



SM-3 Bk I Deliveries	
CY04 	
CY05 	
SM-3 Bk IA Deliveries	
CY06 	
CY07 	
CY08 	
CY09 	
CY10 	
CY11 	

SM-2 Bk IV Deliveries (75)	
FTM-14 (2) Stellar Daggers	

Norfolk BMD Ships	
VELLA GULF	
MONTEREY	
RAMAGE	
STOUT	
*COLE	
*LABOON	
BARRY (FY11)	
MAHAN (FY12)	
ROSS (FY12)	
ARLEIGH BURKE (FY12)	
DONALD COOK (FY12)	



SDGO BMD Ships	
DECATUR	
BENFOLD	
MILIUS	
HIGGINS	
JOHN PAUL JONES	

Mayport Based BMD Ship	
THE SULLIVANS	
CARNEY (FY12)	

Japan Maritime Self Defense Force	
KONGO	
CHOKAI	
MYOKO	
KIRISHIMA	

YOKO BMD Ships	
SHILOH	
STETHAM	
CURTIS WILBUR	
JOHN S. MCCAIN	
FITZGERALD	

PHBR BMD Ships	
LAKE ERIE (4.0.1 EDM)	
PORT ROYAL	
RUSSELL	
O'KANE	
PAUL HAMILTON	
HOPPER	

* Not Yet Certified



EPAA Phase I: USS MONTEREY Deploys to Mediterranean Sea

Aegis BMD

- **First PAA Phase I Deployment**
 - Arrived on station 5 April 2011; assigned Ballistic Missile Defense as Primary Mission
 - Seven Month Deployment
 - Port Visit in Constanta, Romania 06-09 June 2011



- **USS MONTEREY has:**
 - Been on station 101 days as the ATLANTIC Sentry Unit
 - Updated and refined PAA related tactics, techniques and procedures
 - Hosted a Reception and Ship Tours with Teodor Baconsi, Minister of Foreign Affairs; Mircea Geoana, President of the Senate



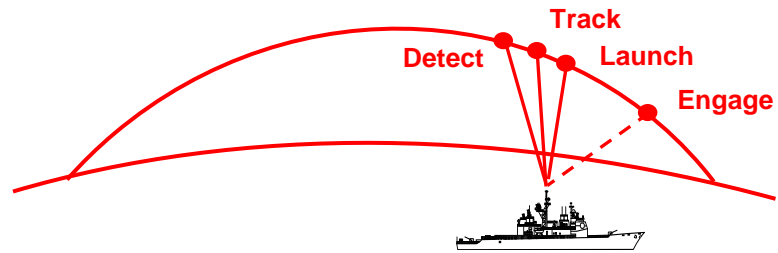
Aegis BMD Concepts of Operation

Exploiting Off Board Sensors

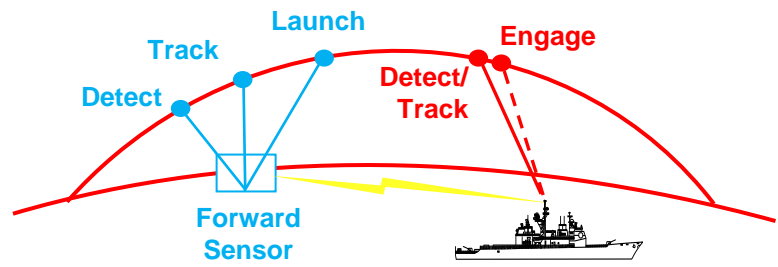


Aegis BMD

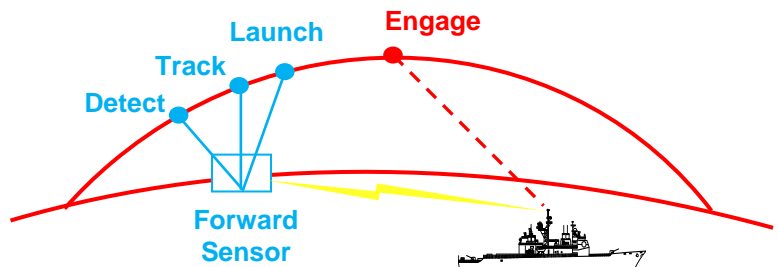
Autonomous Cued



Launch on Remote



Engage on Remote





Aegis BMD Firing Operations

Aegis BMD

Foreign Military Sales

<p>17 Dec 07 JFTM 1</p> <ul style="list-style-type: none"> • First Firing from Japanese Destroyer 	<p>19 Nov 08 JFTM 2</p> <ul style="list-style-type: none"> • First Japanese No-Notice Launch • Separating Target 	<p>27 Oct 09 JFTM 3</p> <ul style="list-style-type: none"> • Engage Separating Warhead with SM-3 Blk IA 	<p>28 Oct 2010 JFTM 4</p> <ul style="list-style-type: none"> • Final JFTM engagement of a separating warhead with SM-3 Blk IA
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Terminal Defense

<p>5 June 08 FTM 14</p> <ul style="list-style-type: none"> • Engage SRBM w/ SM-2 Blk IV 	<p>26 Mar 09 Stellar Daggers</p> <ul style="list-style-type: none"> • Simultaneous BMD/ AAW Engagement
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Homeland Defense

<p>GT-180 Glory Boost</p>	<p>IFT-9/10</p>	<p>PAC EX I, II, III, & IV</p>
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First ICBM Tracking: 19 Sep 02

Timeline of Aegis BMD firing operations:

- 25 Jan 02 (FM-2): Ascent Phase Intercept
- 13 Jun 02 (FM-3): Aim Point Adjust
- 21 Nov 02 (FM-4): No Notice Firing
- 17 Jun 03 (FM-5): Separating Warhead
- 11 Dec 03 (FM-6): First Coalition Test
- 24 Feb 05 (FTM 04-1(FM-7))
- 17 Nov 05 (FTM 04-2(FM-8))
- 22 Jun 06 (FTM 10): SM-3 BLK IA, Aegis 3.6
- 7 Dec 06 (FTM 11): Pulse DACS
- 26 Apr 07 (FTM 11 Event 4): Simultaneous BMD/AAW Engagements, Auto-BMD
- 22 Jun 07 (FTM 12): Engage Dual SRBMs
- 6 Nov 07 (FTM 13): First Launch on Remote Operation
- 20 Feb 08: Satellite Intercept
- 1 Nov 08 (PACBLITZ 08): First Fleet SM-3 Firing
- 30 Jul 09 (FTM 17)
- 15 Apr 11 (FTM 15): First IRBM Intercept

Upcoming Events:
FTM-16 4QFY11

Oct 2008 COMOPTEVFOR Found:
"The Aegis BMD System is Operationally Effective and Operationally Suitable"

Aegis BMD Firings Successes
19 for 22 SM-3 3 for 3 SM-2

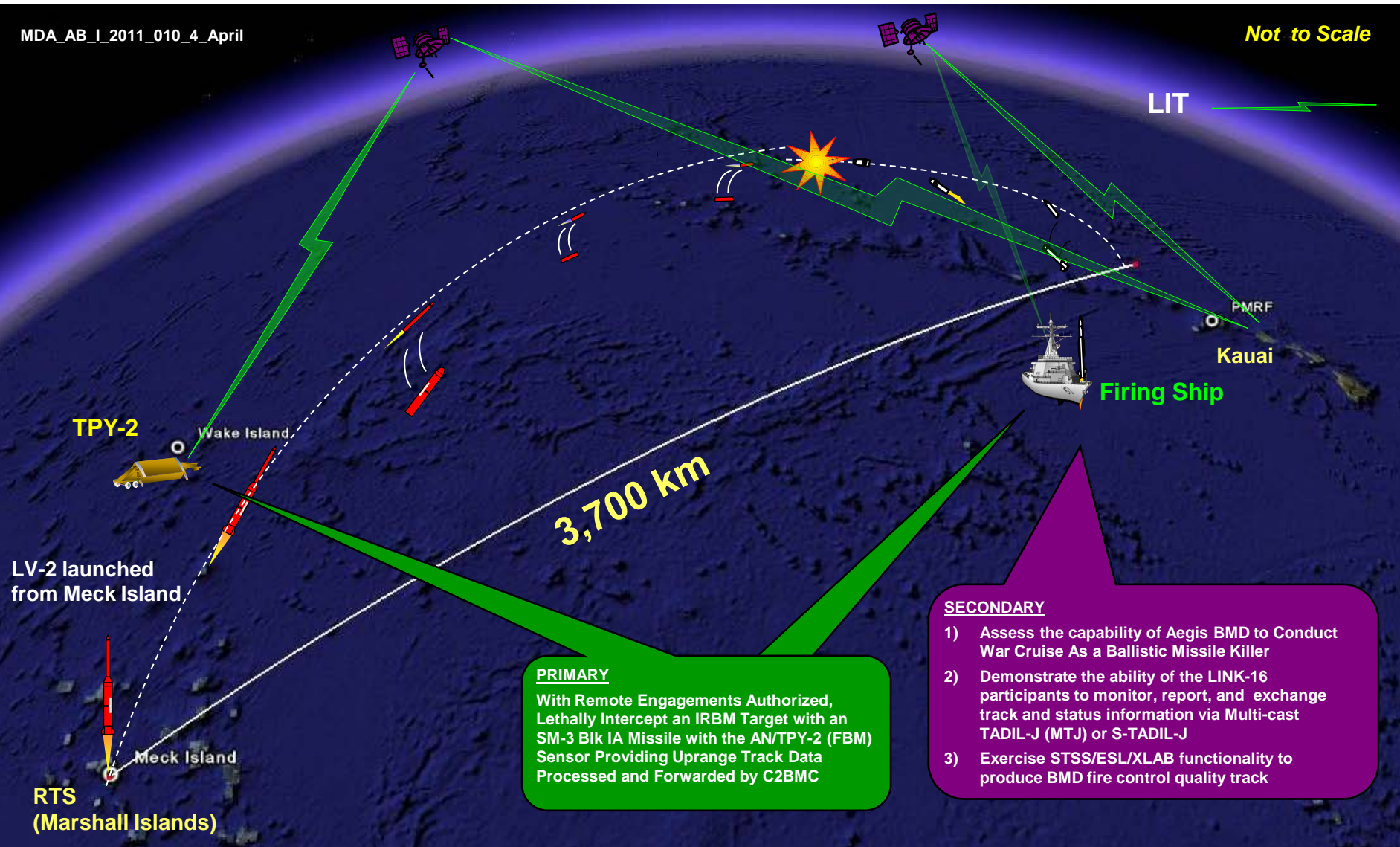


FTM-15 Mission Scenario and Objectives

Aegis BMD

MDA_AB_I_2011_010_4_April

Not to Scale



PRIMARY

With Remote Engagements Authorized, Lethally Intercept an IRBM Target with an SM-3 Blk IA Missile with the AN/TPY-2 (FBM) Sensor Providing Uprange Track Data Processed and Forwarded by C2BMC

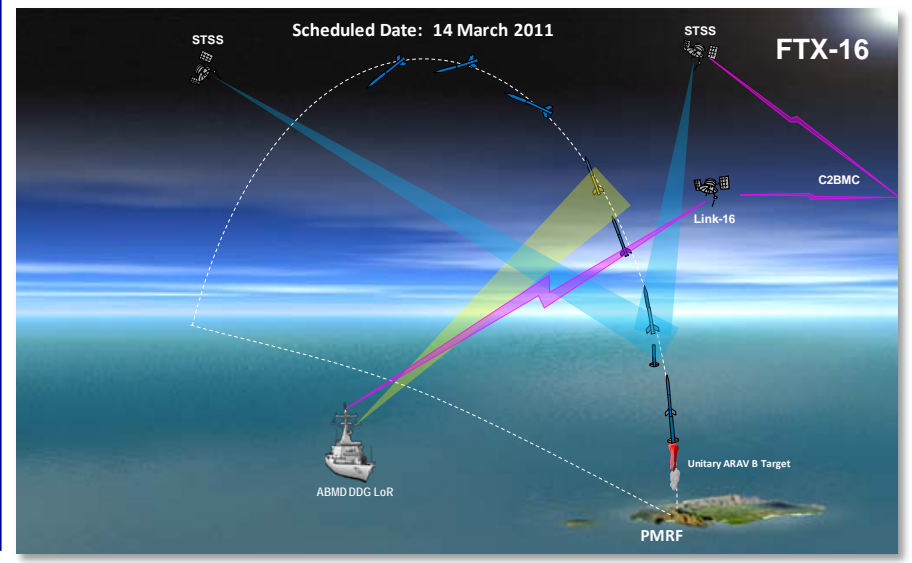
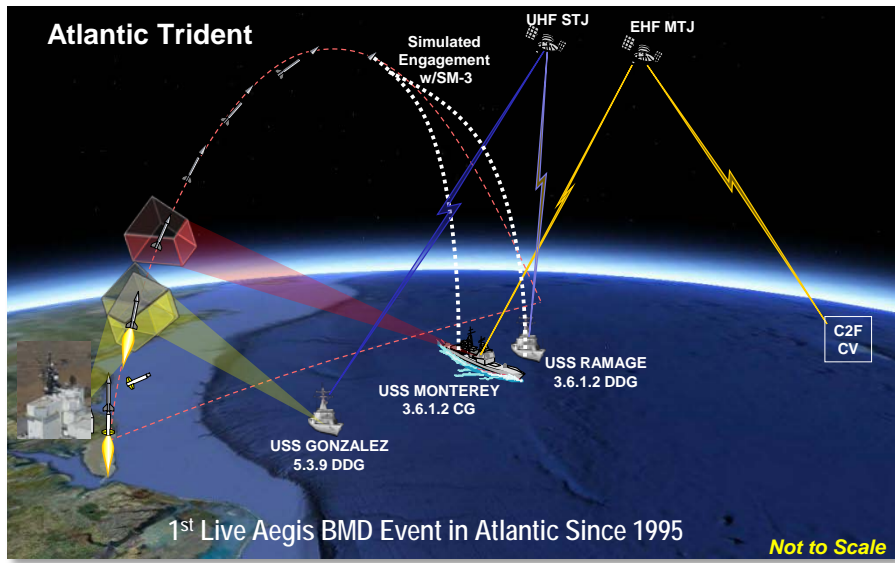
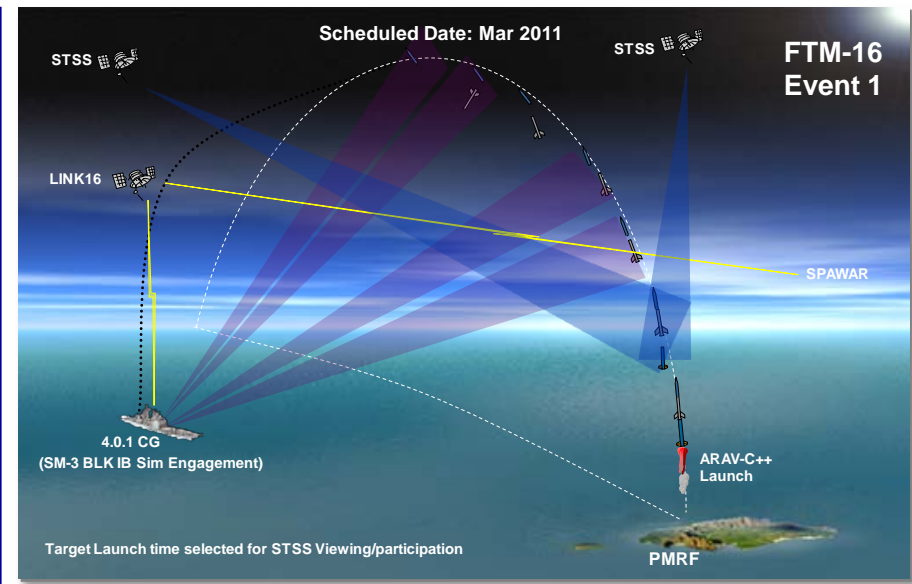
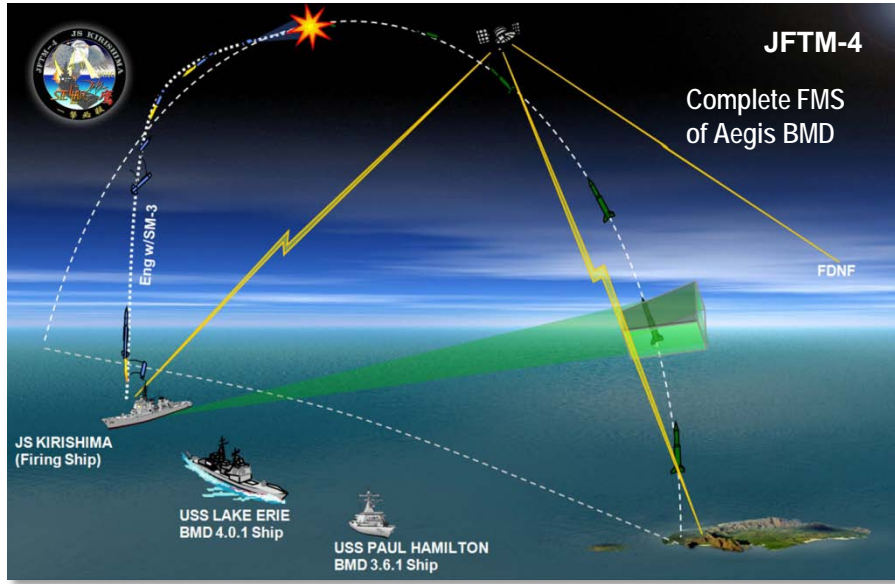
- SECONDARY**
- 1) Assess the capability of Aegis BMD to Conduct War Cruise As a Ballistic Missile Killer
 - 2) Demonstrate the ability of the LINK-16 participants to monitor, report, and exchange track and status information via Multi-cast TADIL-J (MTJ) or S-TADIL-J
 - 3) Exercise STSS/ESL/XLAB functionality to produce BMD fire control quality track



FY11 Major At-Sea Test Operations

- Complete Through March 2011-

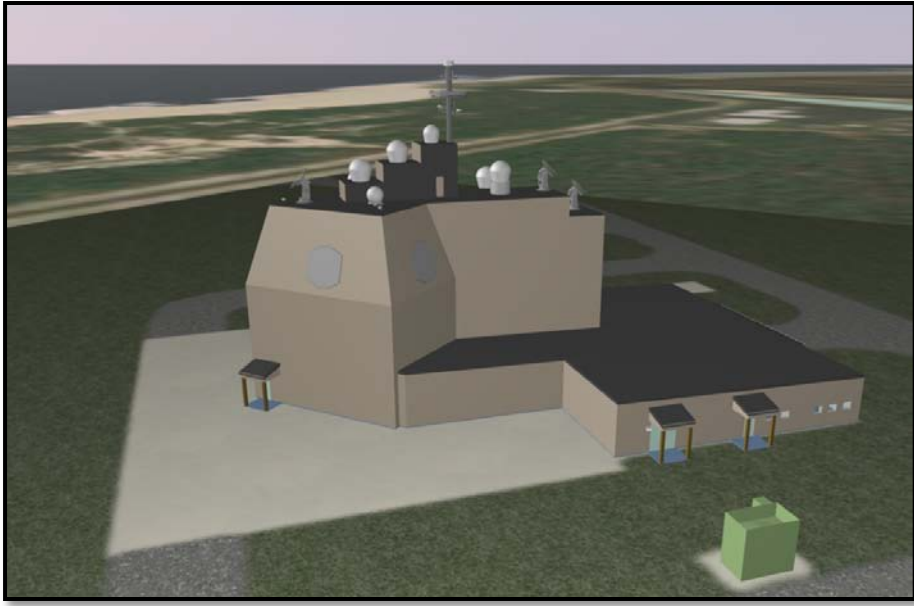
Aegis BMD





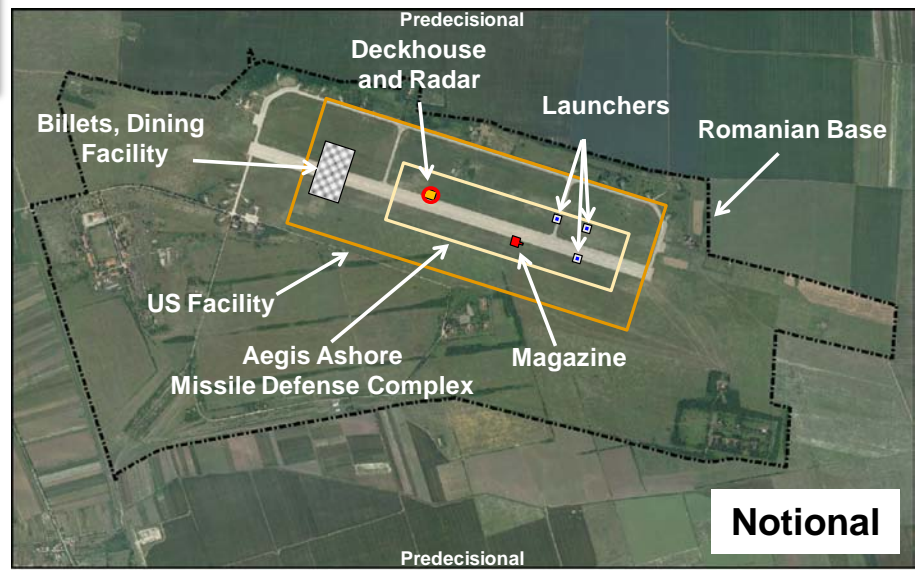
Aegis Ashore Missile Defense Site

Aegis BMD



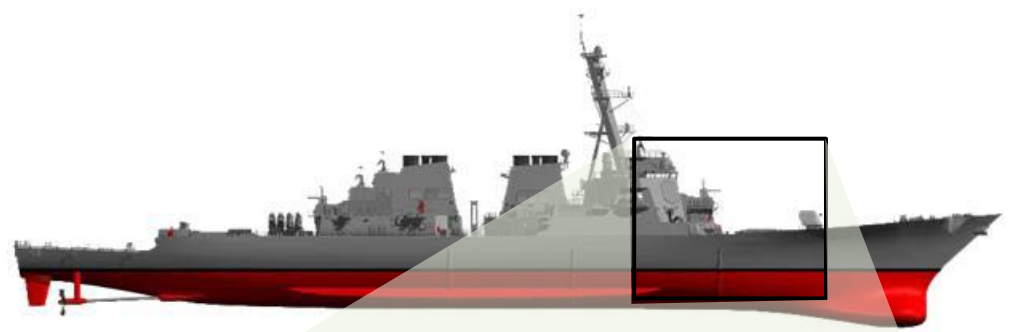
Aegis Ashore Conceptual Drawing

Aegis Ashore Proposed Laydown at Romanian Site



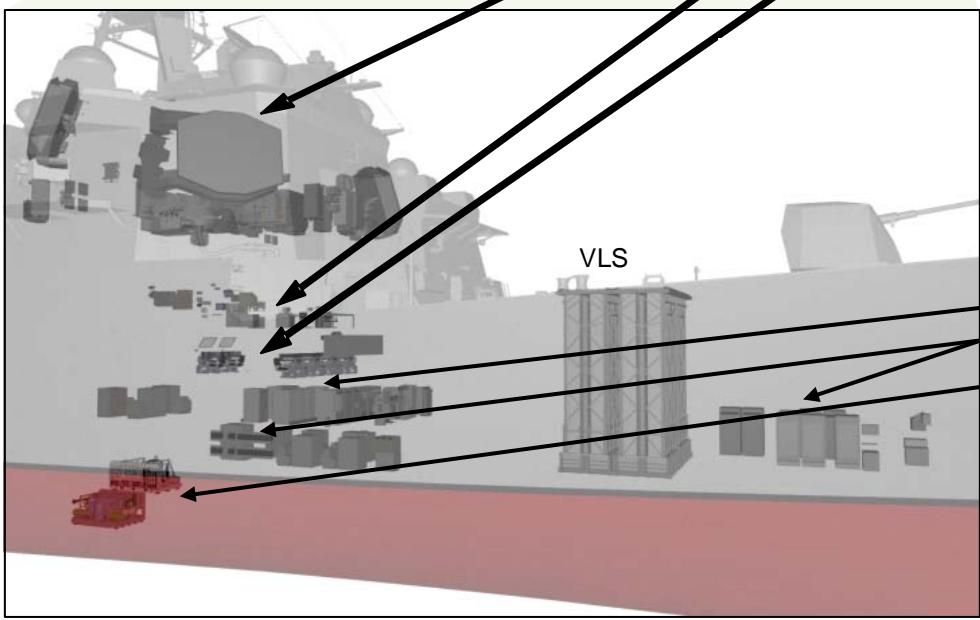
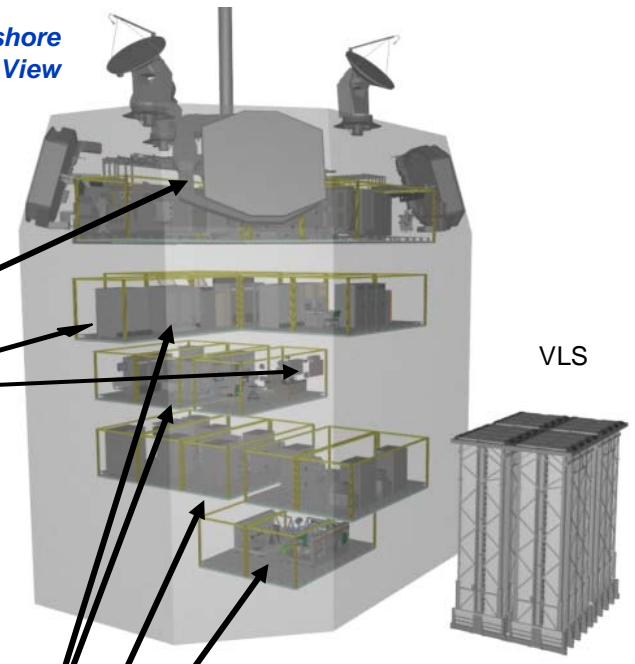


Aegis BMD Transition From Sea To Ashore



U.S. Navy Destroyer (DDG 113)

Aegis Ashore
Conceptual View



SPY Radar and FCS
CSMC
CIC

VLS

Processors
Power Supplies
Water Coolers

Acronyms:	
FCS	Fire Control System
CSMC	Combat System Maintenance Central
CIC	Combat Information Center
VLS	Vertical Launch System

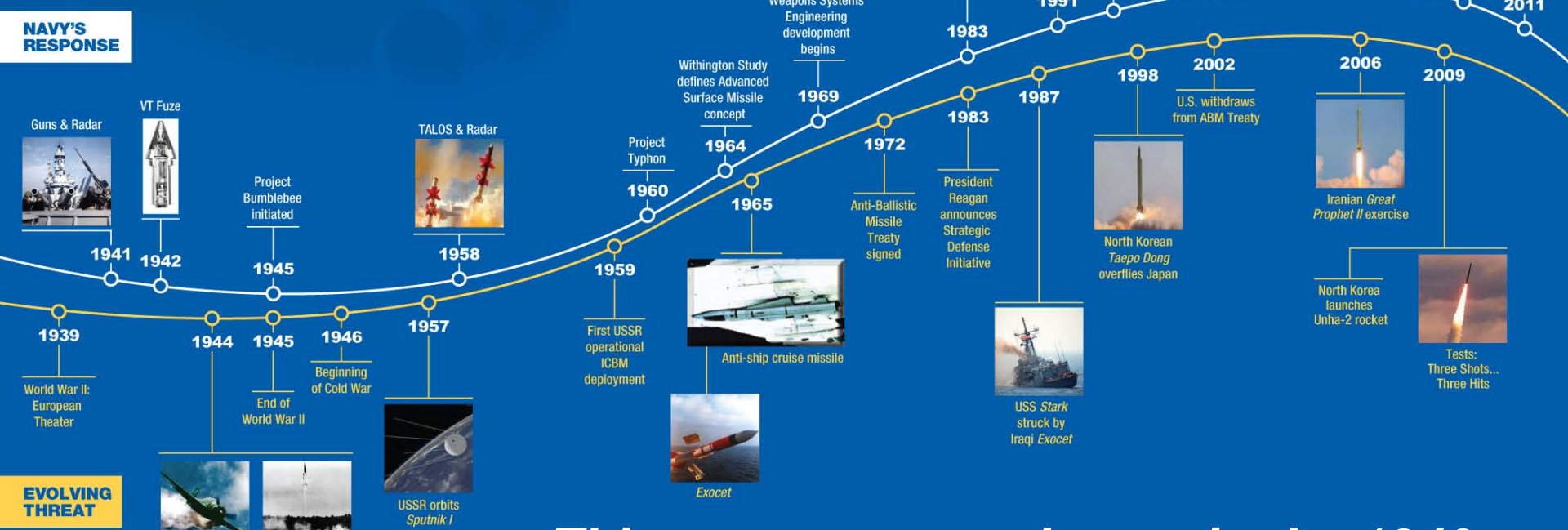


Aegis BMD Life Cycle Management Process

Aegis BMD

- **Deputy Secretary of Defense Memorandum, 10 June 2011 defines funding responsibilities for BMDS elements:**
 - **MDA is responsible for funding research, development, test/evaluation for BMDS capabilities, and procurement and sustainment of BMD-specific mission equipment and initial spares**
 - **Following initial fielding of a BMDS element, MDA will fund the first two years of operations for BMD-specific mission equipment**
 - **MDA will fund construction of mission essential facilities and security infrastructure**
- **Supersedes 2007 Transition & Transfer Memorandum as approved by Deputy Secretary of Defense governing O&S support of prior agreements between MDA and Navy**

- Aegis BMD capability is at sea
- Aegis BMD is operationally suitable and effective
 - Demonstrated ability to defeat short, medium and intermediate range ballistic missiles
 - EPAA Phase I architecture demonstrated
- Force structure capacity and capability increases rapidly over the next 5 years



This success story began in the 1940s, and we are just getting started ...



Aegis Ballistic Missile Defense

Aegis BMD



Forward...At Sea...On Patrol

Enabling Capabilities, Providing Options for U.S. and Allies