



CENTER FOR TECHNOLOGY AND NATIONAL SECURITY POLICY



The Changing Strategic Landscape for Sea-Based Missile Defense

**December 2 - 3, 2009
Marshall Hall, Rm 155
Fort Lesley J. McNair**

www.ndu.edu/CTNSP/NCW_course.htm



The Changing Strategic Landscape for Sea Based Missile Defense

A Forces Transformation and Resources Seminar
Marshall Hall, Room 155, Fort Lesley J. McNair, Washington, DC 20319
December 2nd & 3rd, 2009



Wednesday, December 2nd

0845-0900 Welcome and Introductory Remarks

Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, National Defense University

0900-1000 Vice Admiral Samuel J. Locklear III

Director, Navy Staff, Chief of Naval Operations, United States Department of the Navy

1000-1015 Break

1015-1130 SM-3/AEGIS: Overview and Key Issues

Ms. Kari Bingen, Professional Staff Member, Strategic Forces Subcommittee, House Armed Services Committee

Mr. Scott Perry, Director for Strategic Plans & Communication & Director Business Operations, Aegis Ballistic Missile Defense Program Directorate

Dr. John Plumb, Principal Director of Nuclear & Missile Defense Policy

Dr. George Stewart, Research Analyst, CNA

1130-1245 Rear Admiral John E. Roberti (Lunch, Provided)

Deputy Director, J-5 Strategic Plans and Policy Directorate

1245-1345 SM-3/AEGIS: Operational Capabilities Panel

Captain Jeff Bartkoski, Deputy Commander, Joint Functional Component Command for Integrated Missile Defense, United States Strategic Command

Mr. Peter M. Grant Director, Advanced Programs, Aegis Ballistic Missile Defense, Lockheed Martin

Mr. P. Kevin Peppe, Deputy Vice President, Naval Weapon Systems, Raytheon Missile Systems

1345-1400 Break

1400-1530 Theater Defense & Extended Deterrence

Ms. Elaine Bunn, Director, Future Strategic Concepts Program, Institute for National Strategic Studies, National Defense University

Mr. Richard Fieldhouse, Professional Staff Member, Senate Armed Services Committee

Dr. Robert M. Soofer, Strategic Forces Policy Advisor to Senators Kyl, Sessions, and Inhofe

1530-1545 Closing Remarks

Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, National Defense University

Thursday, December 3rd

0900-0915 Welcome and Introductory Remarks

Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, National Defense University

0915-1015 Rear Admiral Brad Hicks

Program Director, AEGIS BMD, Under Secretary for Acquisition, Technology and Logistics, Missile Defense Agency

1015-1030 Break

1030-1145 Treaty & Diplomatic Considerations

Mr. Ian Brzezinski, Principal, Booz Allen Hamilton

Mr. Frank Rose, Mr. Frank A. Rose, Deputy Assistant Secretary, U.S. Department of State

1145- 1245 (Lunch, Provided)

1245-1400 The Arctic and North Atlantic High Ground

Dr. Stephen Blank, Professor of National Security Studies, Strategic Studies Institute, U.S. Army War College

Mr. Zachary D. Hamilla, Arctic Strategic Analyst, Office of Naval Intelligence

RADM Norm Saunders USCG (Ret), Senior VP, SELEX Sistemi Integrati

1400-1415 Break

1415-1530 Middle East, the Persian Gulf and Proliferation

Lt. Col. Merav Davidovits, Liaison Officer, Israeli Missile Defence Organization

Mr. Michael Eisenstadt, Senior Fellow, Director of the Military and Security Studies Program, Washington Institute for Near East Policy

Dr. Peter Huessy, Senior Defense Consultant, National Defense University

1515-1530 Break

1530-1645 Asia's Offense/Defense Mix

Moderator: Dr. James J. Przystup, Senior Research Fellow, Institute for National Strategic Studies, National Defense University

Mr. Chris Birrer, Strategic Policy Liaison Officer, Australian Defence Staff (Washington), Embassy of Australia

Rear Admiral (Select) Yangsun Choi, Naval Attaché, Republic of Korea Embassy

MG Mitsuru Nodomi, Defense Attaché to the State, Embassy of Japan

1645-1700 Closing Remarks

Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, National Defense University



SPEAKER BIOGRAPHIES



Captain Jeff Bartkoski

Captain Jeff Bartkoski is the Deputy Commander of United States Strategic Command (USSTRATCOM) Joint Functional Component Command Integrated Missile Defense (JFCC IMD). Captain Bartkoski served as a Brigade Commander while attending the U.S. Naval Academy, where he graduated with distinction in 1984 as a Burke Scholar with a Bachelor of Science degree in Ocean Engineering. Following designation as a Naval Aviator, he deployed to the Arabian Gulf and served as a squadron Tactics Officer aboard the USS Elrod. In 1994, Captain Bartkoski completed the Staff Course at the Royal Navy Staff College in London and earned a Masters of Art degree in Defense Studies from King's College, University of London. A former Political-Military Affairs Officer at the U.S. Arms Control and Disarmament Agency and the Department of State, he deployed as the Navigator on the USS Enterprise during Operations Enduring Freedom and Iraqi Freedom. In his most recent assignment, Captain Bartkoski commanded the USS Blue Ridge, the flagship of the U.S. Seventh Fleet, based in Yokosuka, Japan.

Ms. Kari Bingen

Ms. Bingen has been with the House Armed Services Committee as a Professional Staff Member for the past three and a half years. In particular, she supports members of the Strategic Forces Subcommittee in the areas of military space, missile defense, nuclear weapons, and military intelligence. Prior to working on Capitol Hill, Ms. Bingen served as a senior space policy analyst at The Aerospace Corporation's Center for Space Policy and Strategy in Arlington, VA. She provided subject matter expert on space protection, vulnerabilities, and commercial remote sensing for the National Security Space Office (NSSO) and the National Geospatial-Intelligence Agency (NGA). Prior to Aerospace, Ms. Bingen was employed with SRA International's Adroit C4ISR Center in Alexandria, VA as a space systems analyst where she supported various defense and intelligence organizations. She has provided analytical support supported to the National Security Space Office (NSSO), analyzed threats to U.S. space systems at the Central Intelligence Agency's (CIA) Weapons Intelligence, Non-Proliferation, and Arms Control (WINPAC) branch, and served as SRA's Deputy Program Manager providing strategic planning support to the CIA Office of Transnational Issues' Geospatial Analysis Center. Ms. Bingen holds a Bachelor of Science degree in Aeronautics and Astronautics from the Massachusetts Institute of Technology and minor in Political Science with focus on Defense and Security Studies. She was a 2002 National Reconnaissance Office (NRO) Technology Fellow.

Mr. Christopher Birrer

Chris Birrer joined the Department of Defence in 1994, and has worked in a number of resource and financial management, international policy and intelligence positions. Chris joined International Policy Division in Defence in 1999, and has spent time in a number of



SPEAKER BIOGRAPHIES



geographic sections including Papua New Guinea and Solomon Islands (1999-2002); Indonesia (2002); Europe and Middle East (2003-04), North & South Asia (2004-06), and Joint Facilities and Technical Programs (2006-07). In addition to these duties, Chris was the Policy Adviser to the Australian National Commander in the Middle East during Operation Iraqi Freedom from February to May 2003. Before commencing in Washington D.C. Chris was the Director of Regional Issues and Defence Economics in the Defence Intelligence Organisation in 2007. He is currently the Strategic Policy Liaison Officer in the Australian Defence Staff at the Embassy of Australia.

Dr. Stephen Blank

Stephen Blank is Professor of Russian National Security Studies at the Strategic Studies Institute of the U.S. Army War College in Pennsylvania. Dr. Blank has been Professor of National Security Affairs at the Strategic Studies Institute since 1989. In 1998-2001 he was Douglas MacArthur Professor of Research at the War College. He has published over 600 articles and monographs on Soviet/Russian, U.S., Asian, and European military and foreign policies, testified frequently before Congress on Russia, China, and Central Asia, consulted for the CIA, major think tanks and foundations, chaired major international conferences in the USA and abroad in Florence, Prague, and London, and has been a commentator on foreign affairs in the media in the United States and abroad. He has published or edited 15 books focusing on Russian foreign, energy, and military policies and on International Security in Eurasia. His most recent book is "Russo-Chinese Energy Relations: Politics in Command, London: Global Markets Briefing, 2006." Dr. Blank is also the author of a study of the Soviet Commissariat of Nationalities, *The Sorcerer as Apprentice: Stalin's Commissariat of Nationalities*, Greenwood Publishing Group, 1994 and the co-editor of *The Soviet Military and the Future*, Greenwood Publishing Group, 1992. Prior to this appointment Dr. Blank was Associate Professor for Soviet Studies at the Center for Aerospace Doctrine, Research, and Education of Air University at Maxwell AFB. He also held the position of 1980-86: Assistant Professor of Russian History, University of Texas, San Antonio, 1980-86, and Visiting Assistant Professor of Russian history, University of California, Riverside, 1979-80. Dr. Blank's M.A. and Ph.D. are in Russian History from the University of Chicago. His B.A is in History from the University of Pennsylvania.

Ian Brzezinski

Ian Brzezinski leads Booz Allen Hamilton, Inc.'s services to U.S. European Command, NATO's Allied Command Transformation and the Army Foreign Military Sales Market. Mr. Brzezinski joined Booz Allen Hamilton in May 2005. He brought to the Firm over two decades of experience in U.S. national security matters having served in senior policy positions in the Department of Defense and the U.S. Congress. Mr. Brzezinski served as Deputy Assistant Secretary of Defense for Europe and NATO Policy (November 2001 –



SPEAKER BIOGRAPHIES



April 2005). His lead responsibilities included NATO expansion, Alliance force planning and transformation, and NATO operations in the Balkans, the Mediterranean, Afghanistan, and Iraq. Key highlights of his tenure include the expansion of NATO membership in 2004, the consolidation and reconfiguration of the Alliance's command structure, the standing up of the NATO Response Force, and the coordination of European military contributions to U.S. and NATO- led operations in Iraq, Afghanistan, and the Balkans. Mr. Brzezinski served for seven years on Capitol Hill, first as a Legislative Assistant for National Security Affairs to the Chairman of the Senate Finance Committee, Senator Bill Roth, (February 1995 – February 2000) and then as a Senior Professional Staff Member on the U.S. Senate Committee on Foreign Relations (February 2000 – November 2001). In these capacities, Mr. Brzezinski drafted and implemented legislative initiatives and strategies concerning U.S. interests in Europe, Russia, the Caucasus and Central Asia. As the staff coordinator of the Senate NATO Observer Group, he facilitated coordination and communication between the U.S. Senate and the executive branch on NATO enlargement, NATO operations in the Balkans, and Alliance force modernization, among other issues.

Ms. M. Elaine Bunn

Elaine Bunn is a senior fellow at National Defense University's Institute for National Strategic Studies, where she is director of the Future Strategic Concepts Program. Before joining INSS in 2000, she was a senior executive in the Office of the Secretary of Defense, where she worked for twenty years in international security policy. She served as Principal Director, Nuclear Forces and Missile Defense Policy, from 1993-98. During that time, she was executive director of the 1994 Nuclear Posture Review. She was a visiting fellow at the RAND Corporation, 1998-2000; from February through June 2001, she co-chaired a panel for the Secretary of Defense, framing issues for the 2001 Nuclear Posture Review. A 1988 graduate of the National War College, she received an M.A. in International Security from Johns Hopkins School of Advanced International Studies and a B.A. from the University of Georgia, and was a Fulbright scholar at l'Université de Neuchâtel, Switzerland. Her publications include a number of articles and book chapters on strategic planning, nuclear policy, missile defense, preemption and deterrence.

RADM(S) Yangsun Choi

Rear Admiral(S) Choi graduated from the Korean Naval Academy in 1984 and attended US Naval War College in Newport, RI in the NCC Class of 2003. Throughout his long and distinguished career, he has served as the commanding officer aboard both surface and submarine vessels and worked as Chief of the Naval Force Planning of ROK Joint Chief of Staff. He is currently the Naval Attaché of the Republic of Korea Embassy, Washington, D.C.



SPEAKER BIOGRAPHIES



Lt. Col. Merav Davidovits

Lt. Col. Merav Davidovits was appointed Israel Missile Defense Organization (IMDO) Liaison Officer in July 2009. In this capacity she has been in charge of the bilateral relationship between Israel and the US missile defense program. Lt. Col. Davidovits previously served as the C4I & IO department head at the IMDO technical division where she was responsible for developing, testing, and fielding the 'Citron Tree' (Arrow BMC) and 'Golden Almond' (David's Sling BMC), as well as the development of interoperability between Israel's missile defense systems and US BMDS elements, including the development of the 'Israeli Test Bed' (ITB), a war gaming facility. Lt. Col. Davidovits' career began as a software developer in 1992 when she joined the computer R&D unit of the Israeli Air Force, where she gained expertise in designing, developing, testing, and implementing those computerized systems which support the IAF operational alignment. In 1994 Lt. Col. Davidovits was appointed team leader of software development. She led a group of software engineers in the development of a multi-technology environment. In 1998 Lt. Col. Davidovits was appointed project manager of a large-scale team responsible for the development of a human resources software system for the Israeli Air Force. In this position Lt. Col. Davidovits was in charge of all phases of the project, such as analyzing and designing, developing, testing, fielding, maintaining, and training. From 2001 until 2007 Lt. Col. Davidovits managed Command&Control projects such as C2 network systems, data and voice router systems, and C2 for weapon systems. Lt. Col. Davidovits was also responsible for managing the Israeli military industry as well as a large number of subcontractors. During this time Lt. Col. Davidovits gained a great deal of expertise in all of the above areas. Lt. Col. Davidovits earned a BSc. degree in computer science from the TECHNION-ISRAEL Institute of Technology, Haifa, Israel, and an MBA degree in information systems from BAR ILAN University, Ramat Gan, Israel. Lt. Col. Davidovits is married to Eli Davidovits. They have two children, Yuval and Yarden.

Mr. Michael Eisenstadt

Michael Eisenstadt is a senior fellow and director of Military and Security Studies Program at The Washington Institute for Near East Policy. A specialist in Persian Gulf and Arab-Israeli security affairs, he has published scores of articles and monographs on the armed forces of the Middle East, irregular and conventional warfare and nuclear weapons proliferation in the region, and U.S. policy toward the Middle East. Prior to joining the Institute in 1989, Mr. Eisenstadt worked as a military analyst with the U.S. Government. Mr. Eisenstadt is a reserve officer in the U.S. Army, and served on active duty in 2008-2009 as a planner with the U.S. Security Coordinator for Israel and the Palestinian Authority in Jerusalem; in 2008 with the Human Terrain System Assessment Team in Baghdad; in 2001-2002 at U.S. Central Command headquarters and on the Joint Staff during Operation Enduring Freedom and the planning for Operation Iraqi Freedom, and; in 1991 in Turkey



SPEAKER BIOGRAPHIES



and Iraq during Operation Provide Comfort. He has also served in his civilian capacity on the Multi-National Forces-Iraq/U.S. Embassy Baghdad Joint Campaign Plan Assessment Team (2009) and as a consultant to: the congressionally mandated Iraq Study Group (2006); the National Academies Committee on Defeating IEDs (2006); the Multi-National Corps-Iraq Information Operations Task Force (2005-2006), and; the Department of State's Future of Iraq defense policy working group (2002-2003). In 1992, he took a leave of absence from the Institute to work on the U.S. Air Force Gulf War Air Power Survey. Mr. Eisenstadt has an MA in Arab Studies from Georgetown University and has traveled widely in the Middle East. He speaks Arabic and Hebrew, and reads French.

Mr. Richard Fieldhouse

Mr. Fieldhouse is a Professional Staff Member on the Senate Armed Services Committee. He joined the Committee staff in 1996. His Committee responsibilities include the Emerging Threats and Capabilities Subcommittee, ballistic missile defense, homeland defense, chemical and biological defense programs, chemical weapons destruction, proliferation of weapons of mass destruction and ballistic missiles, and related non-proliferation and counter-proliferation issues. Prior to joining the Armed Services Committee staff, Mr. Fieldhouse worked as a Legislative Assistant to Senator Carl Levin (D., Mich), who has served on the Committee since 1979 and is now the Chairman. He joined Senator Levin's staff in 1991, with responsibility for Sen. Levin's Armed Services Committee portfolio. Prior to joining Senator Levin's staff, Mr. Fieldhouse worked in a variety of nongovernmental policy research and writing positions concerning international security, nuclear weapons, and arms control. Mr. Fieldhouse received a B.A. in Political Science from Bates College in 1980.

Mr. Peter Grant

Peter M. (Mac) Grant joined Lockheed Martin Maritime Systems & Sensors (MS2) in September 2005. His current assignment is Program Director for Advanced Programs. In this position he is responsible for strategic planning associated with the Navy's missile defense programs and future combat systems. His military career with the U.S. Navy included command positions within the Missile Defense Agency and the Naval Sea Systems Command. He served as the Missile Defense Agency's Chief Engineer before retiring from active duty in 2005. As Program Director, Aegis Ballistic Missile Defense, Mr. Grant led the team that designed, built, tested, and delivered the first sea-based, space capable, ballistic missile defense system. Professional Associations include the American Institute of Aeronautics and Astronautics, National Defense Industrial Association, American Society of Naval Engineers, Navy League, and the Surface Navy Association. Military awards include the Defense Meritorious Service Medal, the Legion of Merit, and the Meritorious Service Medal. In addition to his military awards, Mr. Grant has received the Navy League's Rear



SPEAKER BIOGRAPHIES



Admiral W. S. Parsons Award for Scientific and Technical Achievement; the NDIA Gold Medal and Lifetime Achievement Award, and the Aegis Ballistic Missile Defense Pathfinder Award. Mr. Grant is a graduate of the U.S. Naval Academy, the U.S. Naval Postgraduate School, and the Defense Systems Management College.

Mr. Zachary Hamilla

Zac received his Bachelor's degree in History from Vassar College, with correlate sequences in Mathematics and Analytic Philosophy, and his Master's degree in International Affairs with a focus on Intelligence from the University of Denver. In 2003 Zac served as a Political Affairs Intern at the U.S. Embassy in Berlin and in 2006 was a Research Intern for a U.S. Senator, working on defense procurement and personal finance. He has been a strategic and political-military analyst at the Office of Naval Intelligence since 2007 and is ONI's principal analyst for Arctic issues.

Rear Admiral Alan "Brad" Hicks

Rear Admiral Brad Hicks concurrently served as Program Director, Aegis Ballistic Missile Defense (Aegis BMD), as Commander, Naval Air and Missile Defense Command and as Commander, Aegis Ballistic Missile Defense, a Naval Sea Systems Command Field Activity. Hicks, a native of Kentucky, graduated from the University of Louisville in 1976 and was commissioned through NROTC. His sea duty assignments ranged from amphibious ships to nearly every type of combatant and he commanded USS Hayler (DD 997) and USS Cape St. George (CG 71). His shore and staff duty includes tours as Aide/Administrative Assistant to the Navy Inspector General, Operations Officer Destroyer Squadron Ten, Flag Secretary to Commander Second Fleet and Operations Officer Cruiser / Destroyer Group Eight. Additionally, Hicks has served on the Joint Requirements Oversight Council (JROC) of the Joint Staff and on several occasions with the Chief of Naval Operations staff including tours as the BMC3/ Joint C4I Requirements Officer for Theater Air Warfare Directorate and as the Director, for Network Systems/Integration (N766). His flag assignments include duty as Deputy Commander, Warfare Systems Engineering (SEA06) to Naval Sea Systems Command and as Deputy Director for Combat Systems and Weapons in the Surface Warfare Directorate (OPNAV N76F). Hicks was selected as a Fellow in the 2002-2003 Massachusetts Institute of Technology's Seminar XXI. His decorations and awards include the Legion of Merit (4), Defense Meritorious Service Medal, Meritorious Service Medal (4), Navy and Marine Corps Commendation Medal (3) and the Navy and Marine Corps Achievement Medal. Hicks will officially retire 01 January, 2010.

Dr. Peter Huessy

Peter R. Huessy. Since 1981, Mr. Huessy has been President of GeoStrategic Analysis, a Maryland defense policy consulting company and since 1992 Senior Defense Consultant,



SPEAKER BIOGRAPHIES



NDUF. He specializes in the following policy areas: strategic nuclear, missile defense, counter terrorism, space, energy, port/maritime and homeland security. He is also a featured writer for Family Security Matters, Frontiers of Freedom, Human Events and Washington Times. He regularly appears on Homeland Security radio hosted by Colonel Randy Larsen. He has also a consultant to the office of the Secretary of the USAF for the past 28 years. He has been a guest lecturer at the Joint Military Intelligence College and the US War College, as well as the Institute for World Politics and Johns Hopkins School of Advanced International Studies. He is a member of the Committee on the Present Danger and the Defense Secretary's Energy Task Force. He regularly speaks on nuclear terrorism issues.

Dr. James Keagle

Dr. James M. Keagle is the Director of the Transforming National Security seminar series at the Center for Technology and National Security Policy at the National Defense University. Prior to this position, Dr. Keagle was the National Defense University's Provost (effective 2004) and Vice President for Academic Affairs. Prior to these positions, he served as a professor of National Security Strategy at NDU. In that role Dr. Keagle worked as a research faculty member assisting with NDU's modeling and simulation and work with interagency education and training. Accepting an appointment to the U.S. Air Force Academy, he graduated second academically in his class in June 1974. Following graduation, he went to the University of Pittsburgh to complete his Master's of Arts degree in political science and earned a graduate certificate in Latin American studies. After a tour as a munitions maintenance officer, Dr. Keagle went on to become an assistant professor of political science at the U.S. Air Force Academy. In 1980, he went on to Princeton University where he completed both a Master's of Arts degree and Ph.D. in politics. He proudly notes his honorary Ph.D from the Military Technical Academy of Romania--the only United States citizen so honored. Following his extensive education, Dr. Keagle's next six tours were political-military assignment that included direct access and interaction with Cabinet-level government officials on national security related matters. These assignments included work for two Combatant Commanders as a senior strategist; for the Office of Secretary of Defense pertaining to Cuba; Deputy Director, Office of the Secretary of Defense Bosnian Task Force; and for the Deputy Under Secretary of the Air Force in International Affairs as Senior Strategist. Military medals include the Defense Superior Service Award, the Legion of Merit, and the Purple Heart. Since leaving military service, Dr. Keagle has held the position of adjunct professor at a number of institutions to include: Syracuse University, American University, Central Michigan University, Catholic University, University of Colorado, and Lake Superior State College. He also holds an honorary professorships with Transilvania University in Brasov, Romania, as well as the Mongolian Defense University--again, the only American so honored. Dr. Keagle and wife Kay are the proud parents of three children.

Vice Admiral Samuel Locklear III



SPEAKER BIOGRAPHIES



Vice Admiral Sam J. Locklear III is a 1977 graduate of the United States Naval Academy. His career as a Surface Warfare Officer includes assignments aboard USS William V. Pratt (DDG-44), USS Carl Vinson (CVN-70), USS Callaghan (DDG-994) and USS Truxtun (CG-35), culminating in command of the USS Leftwich (DD-984). Subsequent fleet command assignments include Commander, Destroyer Squadron TWO, Commander, NIMITZ Strike Group, and Commander, U.S. THIRD Fleet. Ashore, he served as Executive Assistant to the Vice Chief of Naval Operations, the 78th Commandant of Midshipmen, United States Naval Academy, Director, Assessment Division (OPNAV N81), and Director, Programming Division (OPNAV N80). He is a 1992 graduate of the Industrial College of the Armed Forces, and holds a master's degree in Public Administration from the George Washington University. His personal decorations include the Distinguished Service Medal, Defense Superior Service Medal, Legion of Merit with four gold stars, Bronze Star Medal, and various other awards and medals. VADM Locklear assumed duties as Director, Navy Staff in July 2009.

MG Mitsuru Nodomi

Patrick Peppe

P. Kevin Peppe is the Deputy Vice President, Naval Weapon Systems at Raytheon Missile Systems. He is responsible for the Standard Missile family of weapons, ESSM, RAM, Phalanx, SeaRAM, MKV-R and all associated Mission Support. Previous assignments include Executive Director, Close In Weapons Systems, Director, Precision Engagement Strategic Business Area and Senior Program Manager, SSGN. Kevin joined Raytheon in 2003 following a distinguished career in the United States Navy. As a Naval Officer he served as Chief Engineer of the Nuclear Powered Attack Submarine, USS LA JOLLA (SSN 701), Commanding Officer, USS ATLANTA (SSN 712) and was Commodore, Submarine Squadron EIGHT. Staff positions included tours in the Pentagon on the Joint and OPNAV staffs, and as a member of the OSD Interagency Industrial Globalization team. While on active duty he also served as Principal Assistant to the Honorable Charles Robb, Former Governor and U.S. Senator from the Commonwealth of Virginia. A distinguished graduate of the Naval War College, Kevin earned a Bachelor's Degree in Aerospace Engineering from University of Minnesota. He has also earned Masters Degrees in Operations Research from the Naval Postgraduate School and in National Security Strategy from the National War College. In addition he holds a Juris Doctor Degree from the George Mason University School of Law and is a graduate of Executive Leadership programs at both the University of Chicago and Wharton business schools. Raytheon Company is an industry leader in defense and government electronics, space, information technology and technical services. Headquartered in Waltham, Mass., Raytheon employs 73,000 people worldwide.

Mr. Scott Perry



SPEAKER BIOGRAPHIES



Mr. Scott Perry is the Director for Strategic Plans, & Communication & Director Business Operations at the Aegis Ballistic Missile Defense Program Directorate, located in Dahlgren, Virginia. He was one of the original six members of the Navy “ATBM” effort and is the longest serving member of the Aegis BMD effort. He advises to the Program Director, Aegis Ballistic Missile Defense (ABMD) on issues related to defining and upholding the mission and vision of the ABMD program. In this role, he recommends strategic policies and goals, conducts first order engineering and architecture analysis. He serves as an ambassador to the Missile Defense Agency, Navy and other services and communities inside and outside Government. He also is responsible for all aspects of budget development, financial planning and execution. He has also served as Chief of Staff, Acting Director for both Personnel Management and as Special Assistant to the Missile Defense Agency’s first Technical Director. Before coming to the Missile Defense Agency in 2002, Mr. Perry served in the Program Executive Office Theater Air Defense and the Aegis Program Office. During his tenure in NAVSEA, Mr. Perry served as the first Test Director for Navy Theater Missile Defense and as the first Project Engineer for the Navy Theater Wide/Navy Upper Tier Theater Ballistic Missile Defense Program. In recognition of his broad theoretical and practical experience in Ballistic Missile Defense arena, Mr. Perry was selected to lead the congressionally mandated joint Navy-Ballistic Missile Defense Organization Naval National Missile Defense Concept Definition Study. Mr. Perry earned his Bachelor of Science degree in Aerospace and Ocean Engineering at Virginia Polytechnic Institute and State University (Virginia Tech). He is a certified “Range Rat” and has qualified as a drone pilot. Mr. Perry, his wife Juliane (Julie), and their children Matthew and Hayley live in Fredericksburg, Virginia.

Dr. John Plumb

Dr. John F. Plumb is the Principal Director for Nuclear and Missile Defense Policy in the offices of the Secretary of Defense. In this role he helps provide Department of Defense policy oversight and guidance of both the nuclear weapons enterprise and ballistic missile defense programs. His office is responsible for the ongoing Nuclear Posture Review and Ballistic Missile Defense Review, and also provides expertise in support of the START Follow-on negotiations. Prior to this position, Dr. Plumb served in the office of United States Senator Ken Salazar, first as a Congressional Science and Technology Fellow through the American Association for the Advancement of Science, and subsequently on the Senator’s personal staff as his Military Legislative Advisor. He served over six years as a submarine officer in the United States Navy, qualifying as Officer of the Deck and Engineer Officer onboard the fast-attack Los Angeles class submarine U.S.S. San Juan (SSN-751). Following his sea tour, he taught Aspects of Reactor Plant Operation at the Navy’s Nuclear Power School, where he was responsible for the instruction of hundreds of officer students each year. His academic degrees include a B.S. in Physics from the University of Notre



SPEAKER BIOGRAPHIES



Dame and a Ph.D. in Aerospace Engineering from the University of Colorado. He remains active in the Navy Reserves, where he currently holds the rank of Commander.

Dr. James Przystup

Dr. James J. Przystup graduated Summa cum Laude from the University of Detroit and holds an MA in International Relations from the University of Chicago and a Ph.D. in Diplomatic History, also from the University of Chicago. He studied Japanese at Columbia University and at Keio University in Tokyo. Most recently, from 1994 to 1998, Dr. Przystup served as the Director of the Asian Studies Center at The Heritage Foundation. For close to twenty years, Dr. Przystup has worked on Asia-related issues. He served on the staff of the United States House of Representatives' Subcommittee on Asian and Pacific Affairs; in the private sector, at Itochu and IBM World Trade Americas/Far East Corporation; and in the United States government on the Policy Planning Staff at the Department of State and in the Office of the Secretary of Defense, as Director for Regional Security Strategies on the Policy Planning Staff. In 1983-84, he served as the Deputy Director of the Presidential Advisory Commission on U.S.-Japan relations. Dr. Przystup has specialized in Asian security issues, in particular the U.S.-Japan and the U.S.-Republic of Korea security relationships. Dr. Przystup was presented with the State Department's Meritorious Honor Award in 1989 and in 1991; he also received the Defense Department's Outstanding Achievement Award in 1992.

Rear Admiral John Roberti

Rear Admiral John E. Roberti graduated from The Pennsylvania State University and was commissioned an ensign through the Naval ROTC program in August 1981. His initial assignment was aboard the USS Iwo Jima (LPH-2) from 1981 to 1984 with assignments as the Auxiliaries, Electrical, and Electronics Division officer. Completing a deployment to the Mediterranean Sea, he qualified as a Surface Warfare Officer and as Engineering Officer of the Watch. Roberti then underwent initial flight training in Pensacola, Fla., and was designated a naval aviator in March 1986. His subsequent seagoing assignments include: serving twice in HSL-34 flying the SH-2F and completing deployments aboard USS Comte De Grasse (DD-974), USS Aubrey Fitch (FFG-34) and USS Jack Williams (FFG-24); commanding officer of the Proud Warriors of HSL-42 flying the SH-60B; and three tours on USS Nassau (LHA-4) as air boss, executive officer and commanding officer. His shore tours include: the Pentagon in the Office of the Chief of Naval Operations, General Planning and Programming Division (OP-80) as the assistant CNO/VCNO Decision coordinator and aviation program analyst for helicopter and unmanned aerial vehicle programs; The Joint Staff, J-5, Directorate for Strategic Plans and Policy as a politico-military planner; and the Pentagon with assignments as the executive assistant and naval aide to the assistant secretary of the Navy (Financial Management and Comptroller), senior military assistant to



SPEAKER BIOGRAPHIES



the under secretary of Defense (Comptroller) and executive assistant and naval aide to the under secretary of the Navy. Additionally, he served ashore at the Joint Warfighting Center, U.S. Joint Forces Command as chief, Deployable Training Team/Joint Training Division where he was responsible for training all Joint Task Forces/Joint Force commanders and all Regional Combatant commander battle staffs in the conduct of real world Joint/Combined operations and CJCS directed exercises. Roberti attended the Naval War College in Newport, R. I. graduating with distinction from the College of Naval Command and Staff with a Masters of Arts degree in National Security and Strategic Studies. Additionally, he was the U.S. representative to class 45 of the Naval Staff College, a program for mid-grade international naval officers. Roberti's military decorations include the Defense Superior Service Medal, Legion of Merit (with 1 gold star), Defense Meritorious Service Medal, Meritorious Service Medal (with 2 gold stars), Joint Service Commendation Medal, Navy Commendation Medal (with 2 gold stars), Army Commendation Medal, Joint Service Achievement Medal, Navy Achievement Medal, and several unit and service awards.

Mr. Frank Rose

Mr. Rose currently serves as the Deputy Assistant Secretary of State for Defense Policy and Verification Operations in the Bureau of Verification, Compliance, and Implementation. In this position, he is responsible for advising the Assistant Secretary and, as required, the Undersecretary for Arms Control and International Security, on key issues related to arms control and defense policy. These issues include missile defense, military space policy, defense acquisitions, and conventional arms control. His responsibilities also include liaison with the U.S. Intelligence Community on issues related to the verification of arms control treaties and agreements. Prior to joining the State Department June 2009, Mr. Rose held various national security staff positions in the U.S. House of Representatives, including service as a Professional Staff Member on both the House Armed Services Committee and the House Permanent Select Committee on Intelligence, where he focused on missile defense, defense policy, and intelligence issues. Mr. Rose has also held numerous positions within the Office of the Secretary of Defense, including as Special Assistant to the Assistant Secretary of Defense for Strategy and Threat Reduction; and Policy Advisor in the Office of the Assistant Secretary of Defense for International Security Policy. Previous to that, he worked as a National Security Analyst with Science Applications International Corporation, and on the staff of U.S. Senator John F. Kerry (D-MA). Mr. Rose received his Bachelors degree in History from American University in 1994 and a Masters degree in War Studies from Kings' College, University of London in 1999. He is a recipient of the Department of Defense Exceptional Public Service Award (2001) and the Office of the Secretary of Defense Medal for Exceptional Civilian Service (2005).

RADM Norman Saunders



SPEAKER BIOGRAPHIES



RADM Saunders is a veteran of 35 years of active Coast Guard service. In his career, he specialized in surface operations both ashore and afloat. He spent thirteen years in command positions both at sea and ashore. Significant flag assignments include Assistant Commandant for Operations for the Coast Guard and as Commander, Seventh Coast Guard District in Miami, Florida. He is a Viet Nam veteran. Since his retirement from the Coast Guard, he has worked in a number of companies providing consulting services to aerospace and defense firms, both large and small. In 2007, he created his own company and continues to consult in homeland and maritime security. RADM Saunders has been a member of the Independent Strategic Assessment Group for Commander, Northern Command, since the command was stood up. He is a graduate of the Coast Guard Academy, the Naval Post Graduate School, and the National War College. He is a member of Sigma Xi.

Dr. Robert Soofer

Rob Soofer advises Republican Senators Kyl, Sessions, and Inhofe on strategic forces and arms control issues. He supports Senator Kyl in his role as Assistant Minority Leader and Senator Sessions as Ranking Member of the Strategic Forces Subcommittee of the Senate Armed Services Committee. From October 2004 to January 2009, Rob served as Professional Staff lead for the Subcommittee on Strategic Forces, with oversight responsibility for missile defense, strategic forces, military space programs, and U.S. Strategic Command. During the year prior to joining the committee, he was called to active duty as a Lieutenant Commander in the Naval Reserve and assigned to the newly created Terrorist Threat Integration Center (TTIC). Executive branch experience includes serving as Deputy Director in the Office of Missile Defense Policy (Office of the Under Secretary of Defense for Policy), Professor of National Security Policy at the National War College, and various positions with the Strategic Defense Initiative Organization, now known as the Missile Defense Agency. Rob received his Doctorate in International Relations from the University of Southern California (1987) and is a graduate of the National War College (1994). He is the author of *Missile Defenses and Western European Security* (Greenwood Press, 1988) and various journal articles.

Dr. George Stewart

Dr. George Stewart is a Research Analyst at CNA (formerly the Center for Naval Analyses). His research interests are focused on empirically based operations research and the development of scheduling tools in support of the U.S. Navy, joint and coalition operations. He attempts to inform his analyses with operational realities and to that end has spent time with forward based Navy staffs (supporting CTF-72 and CTF-74 on site in Japan from 1987 to 1991) and NATO lessons learned teams (serving with NATO's Joint Analysis Team during 1996 in Bosnia and later on helping to stand up the NATO Joint Analysis Lessons



SPEAKER BIOGRAPHIES



Learned Centre 2002-3). In addition to supporting the forces forward, Dr. Stewart also has spent a significant amount of time in direct support to OPNAV serving as a full time scientific analyst to the Director of Navy Programming (N80) in 1999 and Director of the Assessment Division (N81) in 2002. His research into missile defense issues began in 2000 when he analyzed potential Navy roles and missions in support of the then National Missile Defense program (NMD) for a joint BMDO/DoN report to Congress titled: Naval National Missile Defense: A Potential Expansion of the Land-Based NMD Architecture to Extend Protection. Other missile defense related projects of note have included observation and analysis of combined missile defense exercises (Joint Project Optic Windmill and Juniper Cobra 2010, both in the European theater) and direction of the Analysis of Alternatives for CG-X, a potential future Navy ship concept intended to provide high-end support for missile defense. Dr. Stewart received his Ph.D in Chemistry from the University of Illinois in 1983 and has been with CNA since 1985.

The logo of the Joint Force Command (JFCC) Integrated Mission Directorate (IMD). It is a shield-shaped emblem with a light blue upper section and a red lower section, separated by a white diagonal band. The shield contains a globe with a red lightning bolt, a white eagle's head, and three white stars. The text "Operational Capabilities and Integration" is overlaid in large black font.

Operational Capabilities and Integration

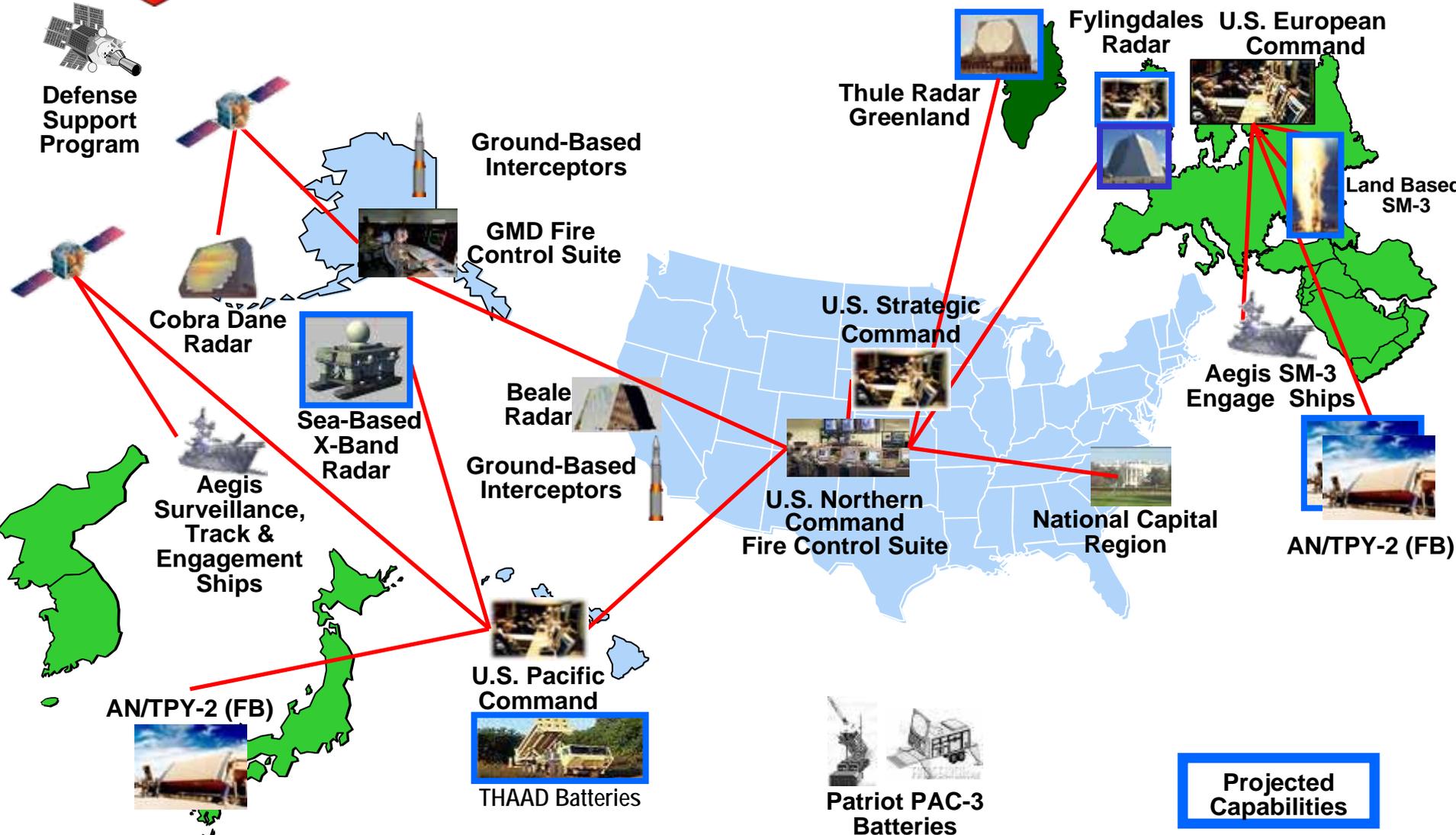
02 DEC 09

CAPT Jeff Bartkoski

Deputy Commander, JFCC IMD



BMD Configuration – 2009 and Beyond



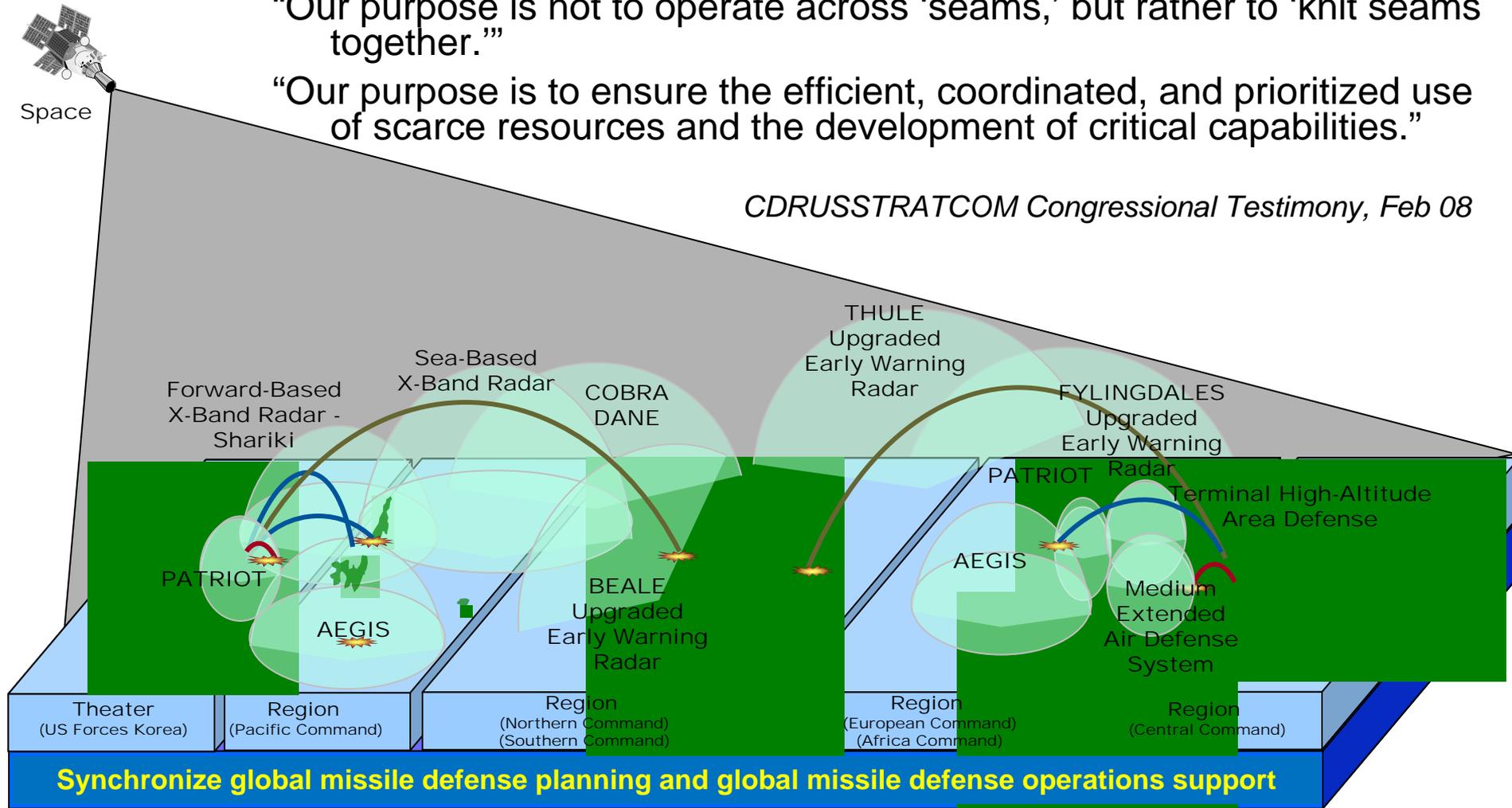


Capability Integration

“Our purpose is not to operate across ‘seams,’ but rather to ‘knit seams together.’”

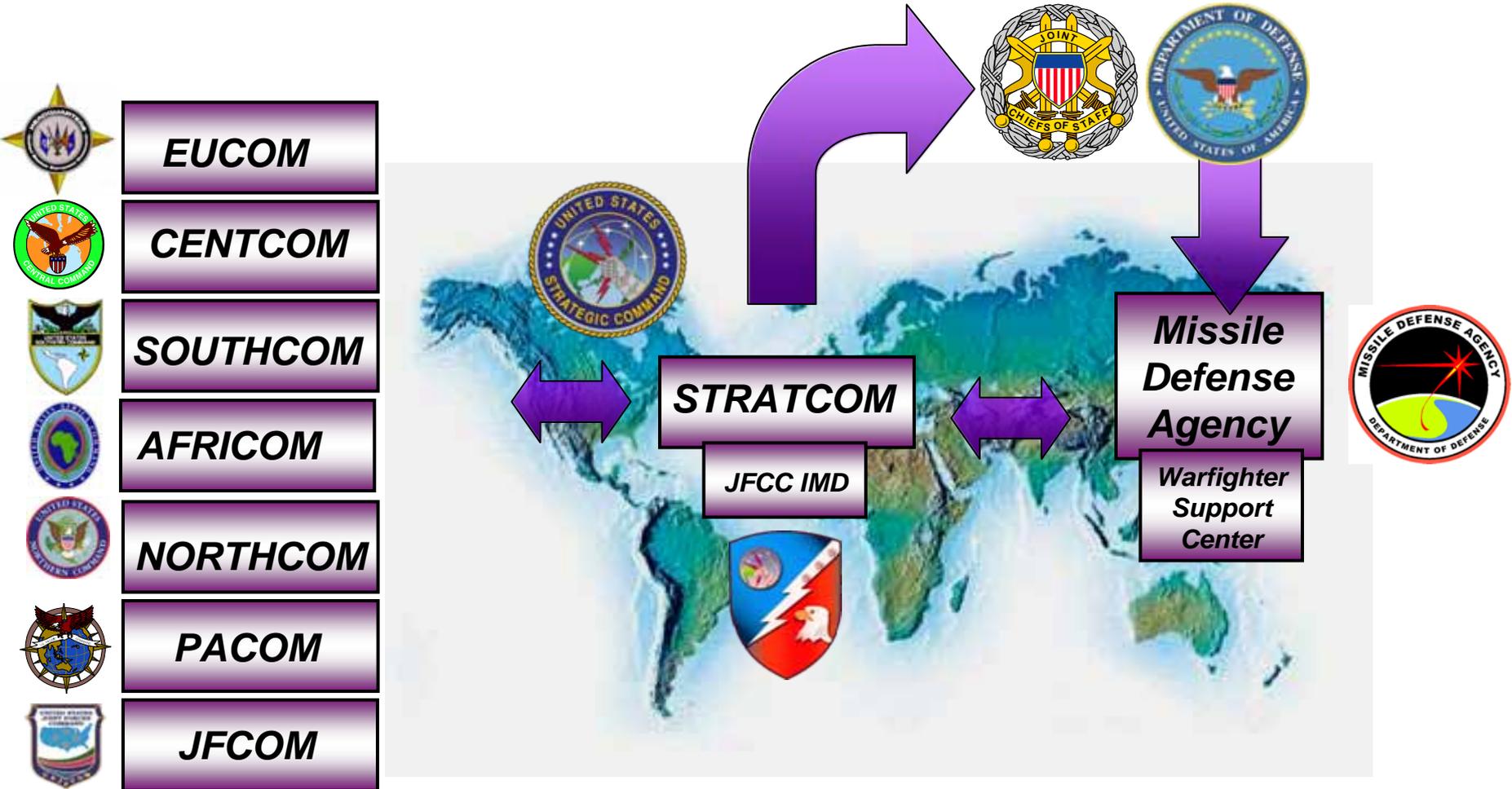
“Our purpose is to ensure the efficient, coordinated, and prioritized use of scarce resources and the development of critical capabilities.”

CDRUSSTRATCOM Congressional Testimony, Feb 08



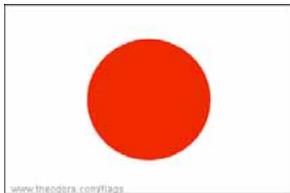
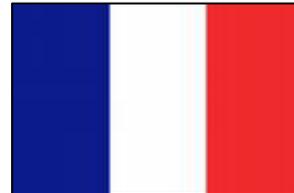
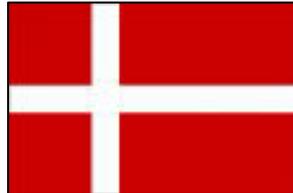


US Missile Defense Community





Allied Integration



The logo is a shield-shaped emblem. The top half is light blue and contains a circular globe with a red lightning bolt striking it. The bottom half is light red and contains a white lightning bolt striking a yellow target. A white diagonal band with three white stars runs from the top right to the bottom left. The text is centered over the shield.

**Joint Functional
Component Command
Integrated Missile
Defense**



Aegis Ashore

***A “Phased, Adaptive”
Approach for Missile
Defense in Europe***

LOCKHEED MARTIN 

2 December 2009

Phased, Adaptive Approach

Missile Defense in Europe



Phase	IOC	Capabilities
I	2011	Aegis Ships with SM-3 Blk IA, THAAD, and Patriot using cue from sensor network (TPY-2, etc)
II	2015	Sea & Shore Aegis Systems with SM-3 Blk IB, THAAD, and Patriot using fire control quality data from sensor network
III	2018	Sea & Shore Aegis Systems with SM-3 Blk IIA, THAAD, and Patriot using fire control quality data from sensor network
IV	2020	Shore Based Aegis Systems with SM-3 Blk IIB, THAAD, and Patriot using fire control quality data from sensor network

Why Aegis Ashore?



- ***Defends U.S. Deployed Forces, Their Families, and our Allies in Europe Against Existing Threat***
- ***Low Risk***
- ***Low Cost***
- ***Earliest Deployment***



Builds on Existing Aegis Combat System

Aegis Combat System
Engineering Development
Site (CSEDS) May 1977



Aegis
Production
Test Center



US Air Force
Intelligence Site

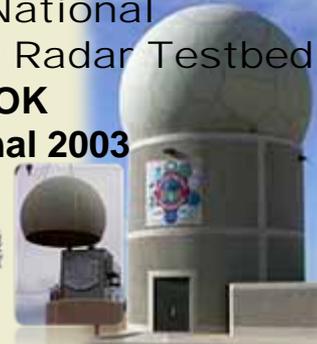


Already Ashore

US Army
White Sands Missile Range
USS Desert Ship



NOAA National
Weather Radar Testbed
Norman, OK
Operational 2003



The Naval Surface
Warfare Center
Dahlgren Division
(NSWCDD)



NASA Wallops
Flight Facility
Surface Combat
Systems Center
August 1989



CIC



Summary



- ***Aegis BMD is Deployed, Demonstrated, Integrated with Operational Forces***
 - ***Aegis Ashore Requires No Changes to Missile, Weapon system, or Radar***
- ***Aegis Ashore Leverages Existing Land-Based Testing and Ground Facilities***
- ***Aegis BMD Development, Testing, Sustainment, and Production Supports Both Sea & Shore Deployments***

Low Cost.....Early Deployment.....Low Risk



AEGIS

BALLISTIC

MISSILE

DEFENSE

***Aegis BMD Overview
National Defense University***

03 December 2009

DRAFT

Rev 1 23 Nov 09





Aegis BMD Program

Aegis BMD

Launch on Remote (Aegis BMD) 2006

Launch on Remote (BMD Sensors)

Engage on Remote 2015

Early Intercept 2015

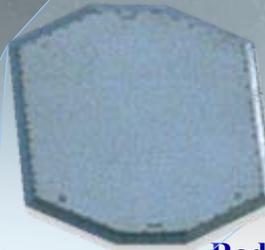
Link 16



Open Architecture
2012



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



Radar System
AN/SPY-1



SM-3



Blk IIA
2015+

Blk I / IA / IB
2004/2006/2011

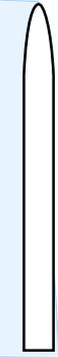


Vertical
Launching
System Mark 41

Sea-
Based
Terminal



Blk IV
2008
Near
Term



2018
Far
Term



Program of Record

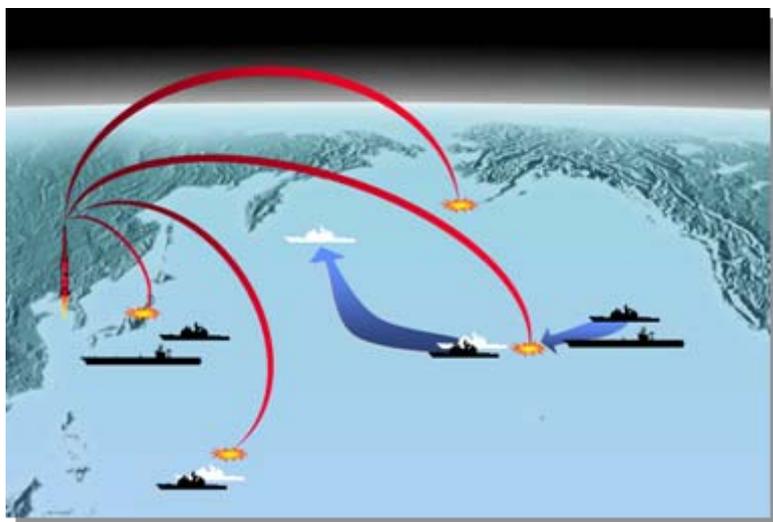
	PB09 Thru 2013	PB10 Thru 2015
	3	5
	15	22
	147	FY - 10: 218/FY - 18: 329
	2	2



Aegis BMD Contribution to The BMDS

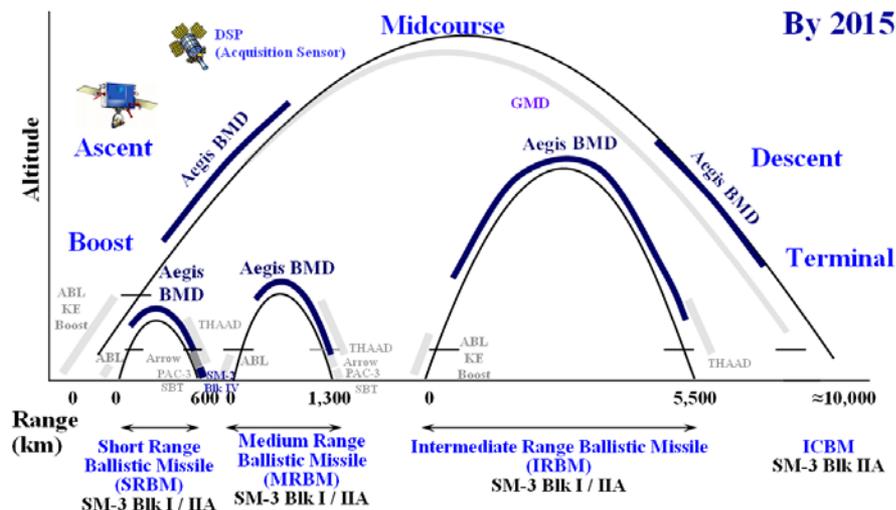
Aegis BMD

Flexible Forward Defense vs Ballistic Missile Threats



- **Autonomous Operations in International Waters Moves Ballistic Missile Defense Forward From U.S.**
- **Counter-Ballistic Missile Strike, Forward Presence, and Multi-Mission Capabilities**
- **Surge Capability Scalable by Force Level and Geographical Considerations**

Engagement:



Long Range Surveillance & Track (LRS&T)

- Fire Control Quality Track Data for Other BMDS Elements

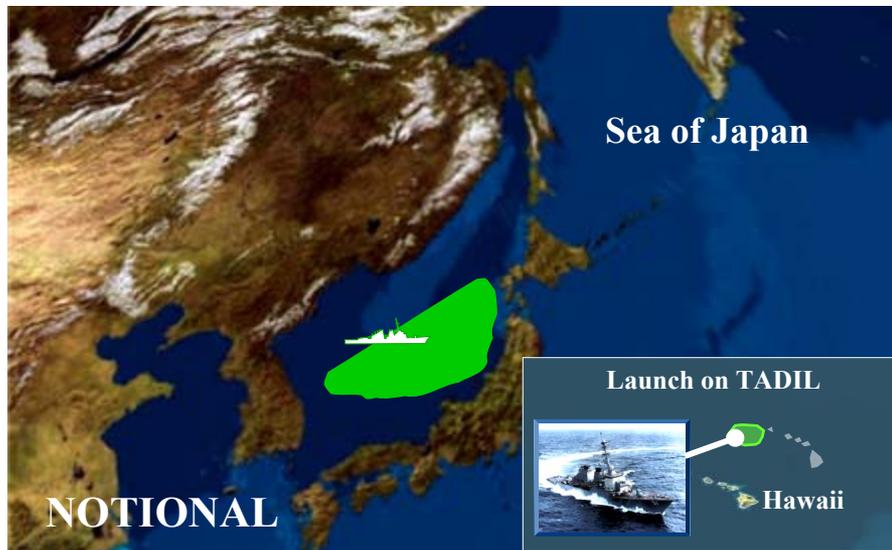
Global Presence





Notional Aegis BMD Patrol Areas for Homeland, Theater and Regional Defense Roles

Aegis BMD



Homeland Defense Role



Theater Defense Role



Theater / Regional Defense Role



Aegis BMD – Proof That it Works

Aegis BMD

Foreign Military Sales



17 Dec 07
JFTM 1

- First Firing from Japanese Destroyer



19 Nov 08
JFTM 2

- First Japanese No-Notice Launch
- Separating Target



28 Nov 09
JFTM 3

- First Japanese AAW Live Fire
- Separating Target

Terminal Defense



5 June 08
FTM 14

- Engage SRBM w/ SM-2 Blk IV



26 Mar 09
Stellar Daggers 09

- Simultaneous BMD/AAW Engagement

Homeland Defense

GT-180 Glory Trip



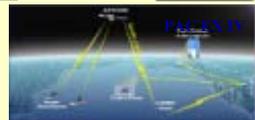
IFT-9/10



PAC EX I, II, III



First ICBM Tracking
19 Sept 02



PAC EX IV

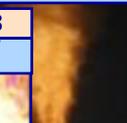
30 Jul 09

Stellar Avenger



1 Nov 08

PACBLITZ 08



• First Fleet SM-3 Firing

20 Feb 08

Intercept of Satellite



• First Launch on Remote Operation

6 Nov 07

FTM 13



• Engage Dual SRBMs

22 Jun 07

FTM 12



26 Apr 07

FTM 11 Event 4



• Simultaneous BMD/AAW Engagements
• Pulse DACS

7 Dec 06

FTM 11



22 Jun 06

FTM 10



• Aegis 3.6/SM Block IA
• First Coalition Test

17 Nov 05

FTM 04-2(FM-8)



24 Feb 05

FTM 04-1(FM-7)



• Separating Warhead

11 Dec 03

FM-6



• No Notice Firing

17 Jun 03

FM-5



• Aim Point Adjust

21 Nov 02

FM-4



• Ascent Phase Intercept

13 Jun 02

FM-3



25 Jan 02

FM-2



• First Intercept

Oct 2008 COMOPTEVFOR Found:

• “The Aegis BMD System is Operationally Effective and Operationally Suitable”

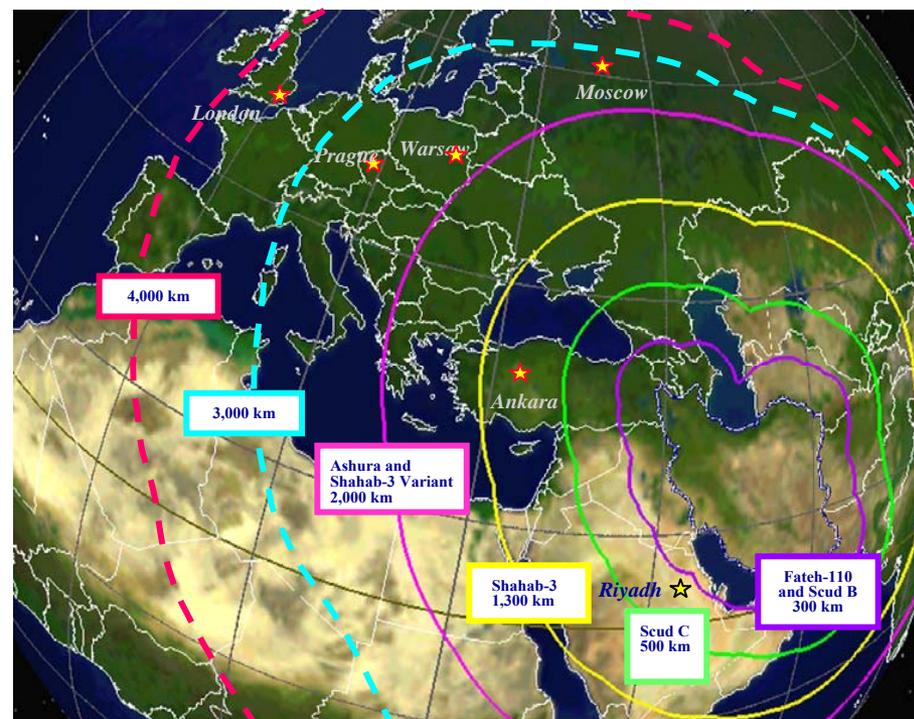
20 for 24 Successes for all Aegis BMD Firings (Both SM-3 and SM-2)



COCOM's Demand Signal

Aegis BMD

- **Growing Numbers of Short- and Medium-range Missiles pose an Increasingly Significant Challenge to U.S. Forces, Allies and Friends in Multiple Regions**
- **Iran's Successful Space Launch (Safir) in February 2009 Shows Progress in Longer-range Ballistic Missile Technologies**



“Iran already possesses ballistic missiles that can reach parts of Europe and is developing missiles that can reach most of Europe. Iran also continues to threaten one of our key regional allies with its advancing missile technology.”

General Bantz J. Craddock, USA
 Commander,
 United States European Command
 Before the Senate Armed Services Committee
 on 24 March 2009



AEGIS BMD Ships

PHBR SHIP
NORVA SHIP

YOKO SHIP
SDGO SHIP

MAYPRT SHIP

Aegis BMD

Current BMD Fielding

OCT 09 USS PORT ROYAL (CG 73)	3.6.1.1	APR 09 USS HOPPER (DDG 70)	3.6.1.1	MAY 09 USS RUSSELL (DDG 59)	3.6.1.1	SEP 09 USS PAUL HAMILTON (DDG 60)	3.6.1.1	MAY 09 USS O'KANE (DDG 77)	3.6.1.1
MAR 09 USS SHILOH (CG 67)	3.6.1.1	APR 09 USS JOHN S. McCAIN (DDG 56)	3.6.1.1	MAR 09 USS STIETHM (DDG 63)	3.6.1.1	APR 09 USS FITZGERALD (DDG 62)	3.6.1.1	MAR 09 USS CURTIS WILBUR (DDG 54)	3.6.1.1
JUL 09 USS RAMAGE (DDG 61)	3.6.1.1	MAY 09 USS STOUT (DDG 55)	3.6.1.1	APR 09 USS DECATUR (DDG 73)	3.6.1.1	AUG 09 USS MILIUS (DDG 69)	3.6.1.1	APR 09 USS BENFOLD (DDG 65)	3.6.1.1
JUN 09 USS HIGGINS (DDG 76)	3.6.1.1	APR 09 USS JOHN PAUL JONES (DDG 53)	3.6.1.1	Additional Ships 2009 (LANT)					
				SEP 09 USS The SULLIVANS (DDG 68)	3.6.1.1	FEB 10 USS MONTEREY (CG 61)	3.6.1.1	DEC 09 USS VELLA GULF (CG 72)	3.6.1.1

6 Additional BMD Ships

FY12 USS CARNEY (DDG 64)	3.6.1	FY12 USS DONALD COOK (DDG 75)	3.6.1	FY12 USS ROSS (DDG 71)	4.0.1	FY13 USS COLE (DDG 67)	3.6.1	FY13 USS MCFAUL (DDG 74)	3.6.1	FY13 USS PORTIER (DDG 78)	4.0.1
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USS LAKE ERIE (CG 70) 3.6 CAPABILITY REMOVED OCT 08 FOR 4.0.1 EDM INSTALLATION



The Aegis BMD Fleet – End of CY 2010

Aegis BMD

Projected SM-3 Deliveries (70)

Projected SM-2 Blk IV Deliveries (70)

Mayport Based BMD Ship

SULLIVANS

CARNEY (FY12)

Norfolk BMD Ships

VELLA GULF

MONTEREY

RAMAGE

STOUT

ROSS (FY12)

DONALD COOK (FY12)

COLE (FY13)

McFAUL (FY13)

PORTER (FY13)

JMSDF BMD Ships

KONGO

CHOKAI

MYOKO

KIRISHIMA

YOKO BMD Ships

SHILOH

STETHEM

CURTIS WILBUR

JOHN S. MCCAIN

FITZGERALD

PHBR BMD Ships

LAKE ERIE (4.0.1)*

PORT ROYAL

RUSSELL

HOPPER

O'KANE

PAUL HAMILTON

SDGO BMD Ships

BENFOLD

HIGGINS

JOHN PAUL JONES

MILIUS

DECATUR

*All Others 3.6.1



Contributing to an Increasingly Capable BMDS

Aegis BMD

Today

Single Layer – Single Ocean

NOTIONAL

BMD 3.6

- Defeat SRBMs, MRBMs, and Limited IRBMs
- Surveillance Support to BMDS

“Deliver a Basic Capability Quickly”

- Integrated Defense & Strike Capability
- Engagement Capability
- Launch on Remote
- LRS&T

Near-Term

2 Defense Layers & 2 Ocean Coverage

NOTIONAL

BMD 3.6.1/4.01

- SRBM, MRBM & Limited IRBM Defense
- Sea-Based Terminal Defense w/SM2 Blk IV
- Enhanced Integration with Other Systems

“Improve Sensors to Make Missiles More Effective”

- Improve Radar Resolution
- Add Terminal Layer
- SM-3 IR Sensitivity & Discrimination

Far-Term

Larger Broader Full Capabilities

NOTIONAL*

BMD 5.0/5.1/5.2

- SRBM, MRBM & Enhanced IRBM
- Limited ICBM Defense
- Sea Based Terminal Defense
- Enhanced Integration with Other Systems

“Improve Missiles”

- Engage on Remote
- Convert Program for Broader U.S. and International Ship Population- Open Architecture
- Increased Battlespace - SM-3 Block IIA (21" Missile)
- Improved BMDS C2BMC Performance

*Alternative Approaches to Defend Europe and Other Regional Allies is Part of Ballistic Missile Defense Review

“An Integral Part Of The BMDS - All Ranges, All Phases, All Regions”



Phased Adaptive Approach

Aegis BMD

2011

**2011
Architecture**

- Aegis SM-3 Blk IA
- AN/TPY-2
- Sea-based
- SR/MRBM Threat

2018

**2018
Architecture**

- SM-3 Blk IIA
- Land- and sea-based
- Advanced sensors
- IRBM/ICBM Threat

2015

**2015
Architecture**

- SM-3 Blk IB
- Land- and sea-based
- Advanced sensors
- SR/MRBM Threat

2020

**2020
Architecture**

- Land-based SM-3 Blk IIB
- Advanced sensors
- IRBM/ICBM Threat

NOTE: Coverage Areas Are Notional



Summary

Aegis BMD

- **Aegis BMD is at Sea Today**
 - Aegis BMD Warships Conducting Missile Defense Patrol Operations
 - Real World Testbed
 - Burnt Frost
 - FY09 North Korean Ballistic Missile Firings
- **Aegis BMD Will Become More Capable Through Block Upgrades**
 - Terminal Capability Added
 - Able to Engage Increasingly Longer Range and More Sophisticated Ballistic Missiles
 - Increases Sea-Based BMD Force Structure
 - Intercepts in the Ascent Phase
 - Capable of Launching and Engaging on Remote Track Data
- **Supports COCOM's Demand Signal**
- **Cornerstone of Missile Defense for European Allies and Friends**
 - Aegis Ashore



Today	Near-Term	End-Term
Single Layer - Single Ocean	2 Defense Layers & 2 Ocean Coverage	Large Broader Field Capabilities
BMD 3.6	BMD 3.6/3A/01	BMD 5.0/5.1/5.2
<ul style="list-style-type: none"> • Defeat SRBM, MRBM, and Limited IRBM • Surveillance Support to BMD5 	<ul style="list-style-type: none"> • SRBM, MRBM & Limited IRBM Defense • Sea-Based Terminal Defense w/BMD BA IV • Enhanced Integration with Other Systems 	<ul style="list-style-type: none"> • SRBM, MRBM & Enhanced IRBM & Some Defense, Limited ICBM Defense & Sea Based Terminal • Enhanced Integration with Other Systems
<ul style="list-style-type: none"> • "Deliver a Basic Capability Quickly" • Integrated Defense & Strike Capability • Launch on Remote • LR&ST 	<ul style="list-style-type: none"> • "Improve Sensors to Make Missiles More Effective" • Improve Radar Resolution • Add Terminal Layer • SB&IR Sensitivity Discrimination 	<ul style="list-style-type: none"> • "Improve Missiles" • Engage on Remote • Convert Program for Broader U.S. and International Ship Population - Open Architecture • Increased Standoff - SB&3 Block IA (21" Missile) • Improved BMD5 CSBMC Performance
<p>"AN INTEGRAL PART OF THE BMD5 - ALL RANGES, ALL PHASES, ALL REGIONS"</p>		

SM-3 Block 1A	SM-3 Block 1B	SM-3 Block 1C	SM-3 Block 1A
<ul style="list-style-type: none"> • 18.1" Nosecone • 2.4-ton Service • 1000 km Range • 1000 km Range • 1000 km Range • 1000 km Range 	<ul style="list-style-type: none"> • 21" Nosecone • 2.4-ton Service • 1000 km Range • 1000 km Range • 1000 km Range • 1000 km Range 	<ul style="list-style-type: none"> • 21" Nosecone • 2.4-ton Service • 1000 km Range • 1000 km Range • 1000 km Range • 1000 km Range 	<ul style="list-style-type: none"> • 21" Nosecone • 2.4-ton Service • 1000 km Range • 1000 km Range • 1000 km Range • 1000 km Range
<ul style="list-style-type: none"> • 13.5" Fragmentation 3rd & 2nd Stage • 10K 72 Destroyer • 10K 41 Destroyer • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS 	<ul style="list-style-type: none"> • 13.5" Fragmentation 3rd & 2nd Stage • 10K 72 Destroyer • 10K 41 Destroyer • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS 	<ul style="list-style-type: none"> • 21" Fragmentation 3rd & 2nd Stage • 10K 72 Destroyer • 10K 41 Destroyer • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS 	<ul style="list-style-type: none"> • 21" Fragmentation 3rd & 2nd Stage • 10K 72 Destroyer • 10K 41 Destroyer • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS • 10K 41 VLS

Current BMD5 Fielding									
NOV 09	APR 09	MAY 09	SEP 09	MAY 09	NOV 09	APR 09	MAY 09	SEP 09	MAY 09
USS RYAN (DDG 75)	USS HANSEN (DDG 76)	USS BROADBENT (DDG 77)	USS TIGHE (DDG 78)	USS SHAW (DDG 79)	USS RYAN (DDG 75)	USS HANSEN (DDG 76)	USS BROADBENT (DDG 77)	USS TIGHE (DDG 78)	USS SHAW (DDG 79)
MAR 09	APR 09	MAR 09	APR 09	MAR 09	JUL 09	MAY 09	APR 09	AUG 09	APR 09
USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)
AUG 09	MAY 09	APR 09	AUG 09	APR 09	JUN 09	APR 09	SEP 09	FEB 10	DEC 09
USS HANSEN (DDG 76)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS JOHN S. MACLEAN (DDG 43)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)
Additional BMD5 Ships (LANT)									
SEP 09	FEB 10	APR 09	SEP 09	APR 09	SEP 09	APR 09	SEP 09	APR 09	SEP 09
USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)
Additional BMD5 Ships									
FY12	FY12	FY12	FY12	FY12	FY12	FY12	FY12	FY12	FY12
USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)	USS JOHN S. MACLEAN (DDG 43)	USS STEPHEN (DDG 44)	USS BRADY (DDG 42)

“Aegis BMD - We Deliver”



Keys To Our Success

Aegis BMD

- **Nature of Aegis BMD's Organization & Philosophies (A few):**
 - System Engineering Approach to Solve Problems
 - Management Teamwork – Program Directorate, Government Activities, & Contractors
 - Learn From the Past
 - “Build a Little, Test A Little, Learn A Lot”
 - Words Mean Things
 - Own All Resources Necessary to Accomplish Mission
 - Have a Blue Ribbon Panel Before Each Flight
- **Imminent Threat – Urgent Demand**
- **Quality & Competency of Program Leadership**
- **Strategy: Evolutionary Acquisition, Capability Based Development**
- **Differentiation From Anti-ICBM Mission**
- **Well Defined Set of Flexible Goals**
- **Unprecedented Authority Vested in MDA – Talent, Resources, & Accounting Flexibility**
- **Sustained, Strong Political Support**
- **Beware the Latest Fad, Give it a Little Run Time Elsewhere First to Prove Itself**

Proliferation: The Middle East

Remarks by Peter R. Huessy, President,
GeoStrategic Analysis of Potomac, Maryland
and Senior Defense Consultant to the
National Defense University Foundation,
December 3rd, 2009, NDU Ft. McNair

I. What are we trying to Do?

- Prevent the transfer of nuclear weapons to a terror group
- Prevent blackmail and coercion
- Defend and defeat if deterrence breaks down
- Prevent economic warfare
- Reduce “top-cover” for terrorism
- Prevent EMP attack maritime environment

II. What are Some of our Options

- Eliminate the Iranian regime
- Serious economic sanctions, e.g., energy sector, including divestment, (Kyl, Bayh legislation)
- Traditional deterrence
- Deterrence augmented by missile defense, PSI, sanctions and divestment

What are the Dots?

- Qom facility can produce only enough EU for a nuclear device (Albright 2009)
- Natantz remains off limits with 50,000 centrifuges and enriched uranium
- Iran \$'s for Syrian nuclear facility/Israel destroyed in 9/07
- Russian technicians at Iranian nuclear facilities

Dots (2)

- 118 count indictment by NYC Attorney of Chinese firms assisting Iran with BM technology and NW technology
- Iranian missile launches of Nov 08 and May 09/staged and solid rocket fuel
- RGC Commander: “We will attack you with our suicide bombers and our ballistic missiles”

Dots (3)

- Rafsanjani: A couple of nuclear weapons dropped on Israel, the Jews all die; a few nuclear weapons dropped on Iran, the revolution continues
- Iran launched a missile from the Caspian, detonating the missile above the atmosphere in an EMP mode; western intelligence said the missile launch was a failure; the Iranians showed the video and called it a success
- Iran arming Yemeni and Somalia-based pirates

Dots (4)

- Recent Books: Deadly Scenarios by Krepinevich; In the Words of Our Enemies by Babbin; The Nuclear Express by Reed and Still man; and Accomplice to Evil by Ledeen. They have some common themes re: proliferation in the Middle East
- A. Iran is at war with the U.S. and its allies; (Iraq, Afghanistan, Lebanon, Israel, Morocco, UAE, Saudi Arabia)
- B. Iran is seeking nuclear weapons
- C. The Khan network and Pakistan's nuclear weapons program was started by the PRC
- D: Missiles and nuclear capability are weapons of choice (vs. Tanks, tactical aircraft)

Dots(5) Iran

- Uzi Rubin: Staged missiles with solid rocket motors
- Iran has passed NK in capability
- Supplier of missiles to Syria, Hezbollah
- Little Warning Time; steam to the threat may not be feasible or timely but remains highly desirable; Providing additional airborne capability with modified AMRAMM allows multiple platforms to assist in missile defense
- MDA 5500 short/medium range missiles in world inventory; roughly 1200-1300 interceptors available for US and allies; comparable numbers in 2000 were 3500 vs. 0.
- Of the 1000 interceptors now deployed by the US, 30 are to shoot down long range ICBMs; with the completion of the deployments previously scheduled for Poland and Greeley would have been 54 out of 1000

Dots(6)

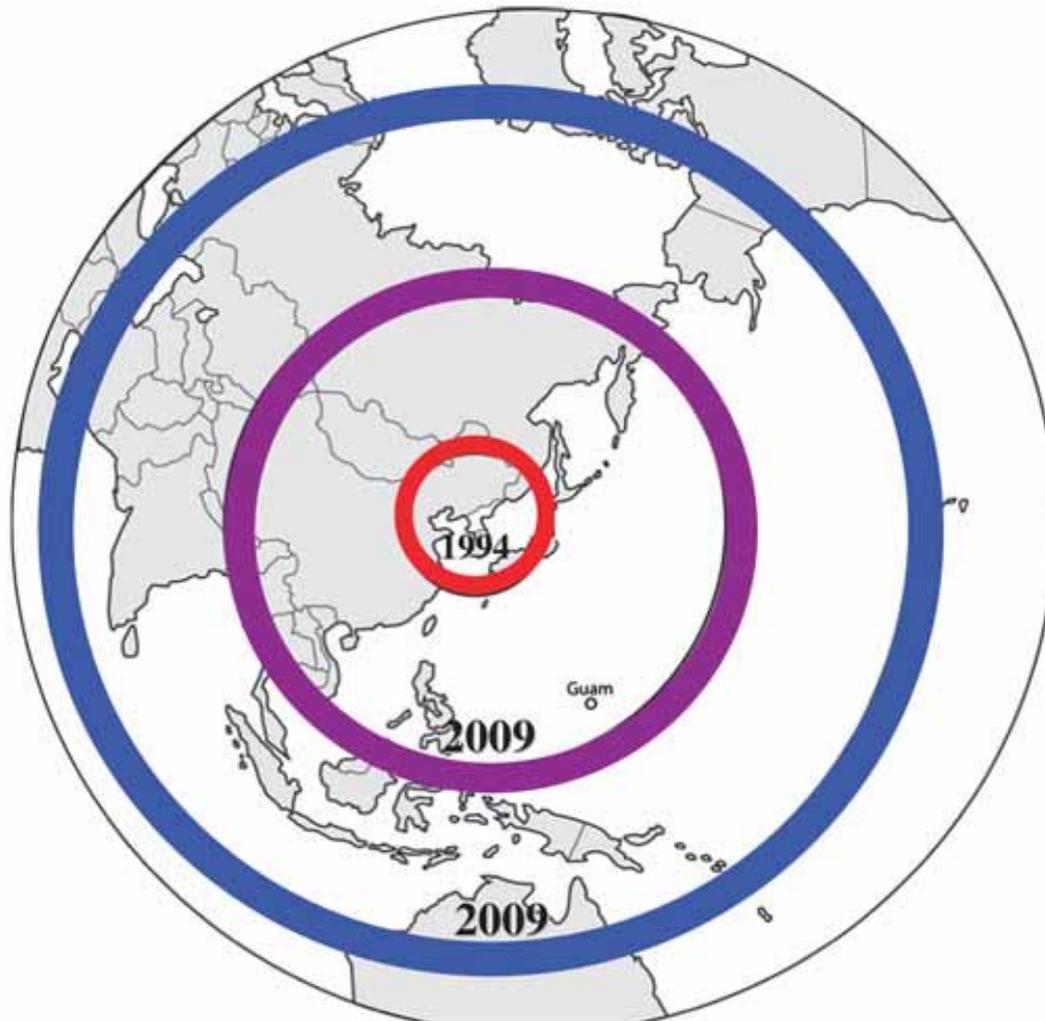
- “A half dozen American presidents have ignored or aggravated the hazards emerging within Iran. European governments have extended, into this new century, the same policy of dithering that empowered the Third Reich.” Reed and Stillman, *The Nuclear Express*, 2009.

Dots(7)

- “We need to shed all illusions about the nature of such regimes...and the false prophecy that whatever differences we have can be resolved by patient negotiations...We should have learned by now they are all implacable enemies of all free societies...”
Ledeen in *Accomplice to Evil*, 2009

“High School Science Project”

- Some critics have claimed that Iran’s ballistic missile production capability of long range rockets is essentially a “high school science project.” In the Winter issue of the Washington Quarterly, (p. 117) a chart is published from a June 17, 2009 International Crisis Group report: the NK Nodong in 1994 had a range of 1000k; the Musudan of 2009 had a range of 4000k; and the Taepodong-2 a range of 6700k-the latter bringing all of Alaska and Hawaii in its range. Contrast this with the conclusion of the CIA in late 1994, early 1995: North Korea will not have the capability to target the U.S. with ballistic missiles for at least the next 15 years.



	DPRK name	Other names	Range	Inventory	TEs	Description
A	Kwang-myŏngsŏng	Nodong	1,000km	220-320	27-30	Liquid fuel, road-mobile
B	?	Musudan; BM-25; (SS-N-6)	4,000km	20-30	22-27	Liquid fuel, road-mobile
C	Paektusan-2, Unha-2	Taepodong-2	6,700km	3-4 (?)	N/A	Liquid fuel, tower launched

 Nodong in 1994

 Musudan in 2009

 Taepodong-2 in 2009

The Accessible Arctic

A Quick Overview

December 2009

The Environment

- Arctic is warming at a rate twice that of the rest of the Earth; unexplained by current scientific models
- Arctic may be “ice free” in the summer as early as 2015; as late as 2030
- “Ice free” means no single or multi-year fast ice; Arctic will be littered with free floating ice
- Prevailing Arctic winds will block the Northwest Passage with floating ice making passage difficult if not impossible

Operating Environment

- Despite climate change, environment is harsh
 - Ship and aircraft systems largely untested to date
- Very limited logistic and support structure
- Distances are extreme; access to operating areas requires long transits; little on station time
- Survival is difficult in the event of an emergency

Impact of Environmental Change

- Access by surface vessels is possible over a much larger area
- Increased interest in exploration and exploitation of energy, mineral and fish resources
- Increased tourism from kayakers to cruise ships
- Increased access for scientific research including oceanographic observation and bottom mapping
- Some increased commercial shipping
- Elevated opportunities for environmental damage to the pristine Arctic environment
- Increasing demands for search and rescue as well as environmental response

Future Trade Routes



**Less Ice Means More Traffic
in USNORTHCOM AOR
through the Bering Strait**

East Coast to Asia

**Hamburg to Yokohama
(nautical miles)**

Northern Sea Route ~ 6,920

Suez Canal ~ 11,073

Panama Canal ~ 12,420

Cape of Good Hope ~ 14,542

Impact as Access & Economic Development Grows

- Significant vessel traffic through the Bering Strait and off the Alaska north coast
- Increased cruise ship activity in AOR
- Increased probability of distressed or lost ships
- Increased commercial activity
- No impact on commercial polar over flight
- Terrorist threat level moves from none to low

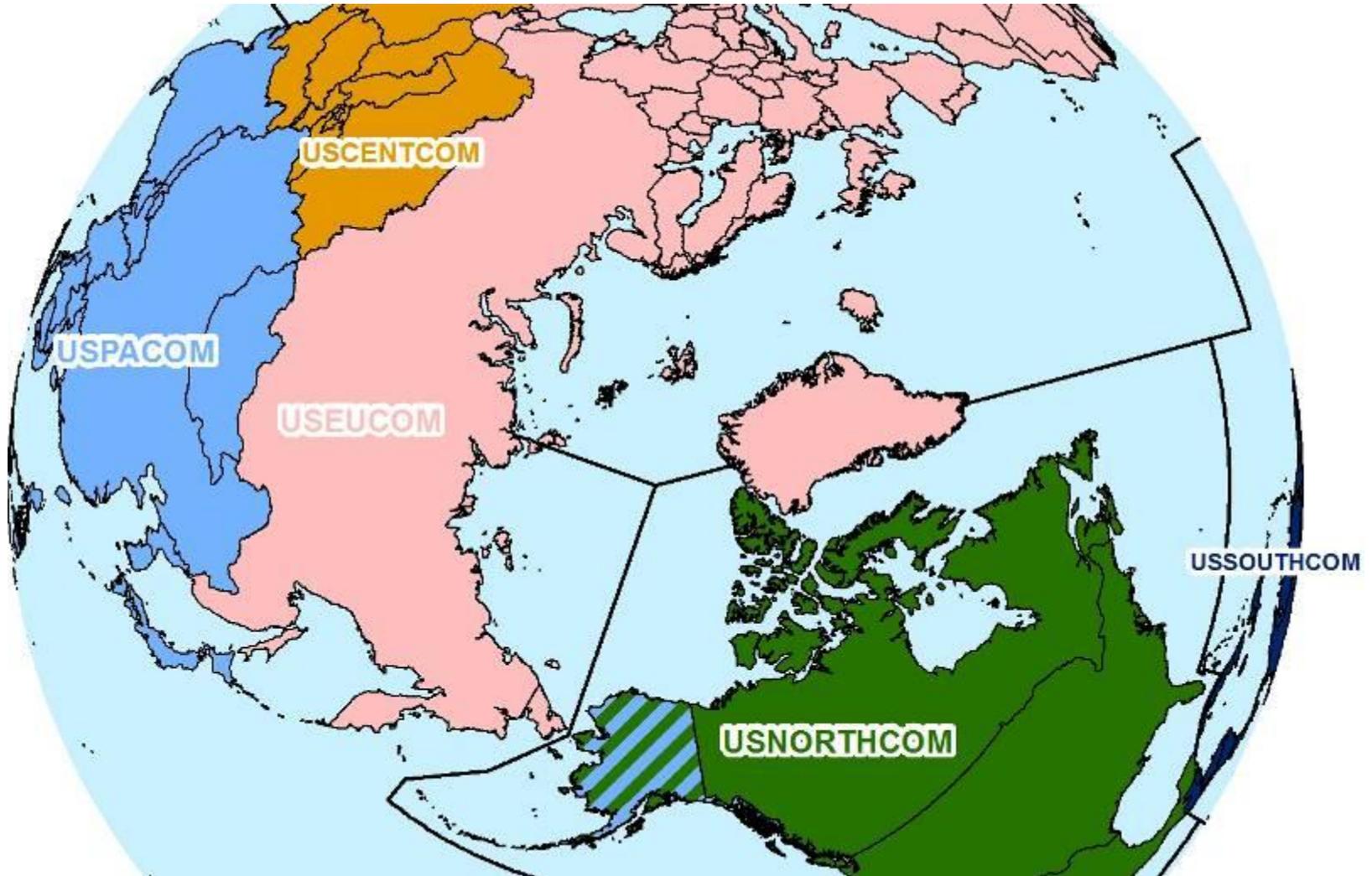
Impact

- *Greater demand for reliable communications and navigation situational awareness*
- *Increased requirement for U. S. Naval presence*
- *Greater probability of COCOM receiving request for assistance for security*
- *Likelihood of major SAR/environmental event will increase*

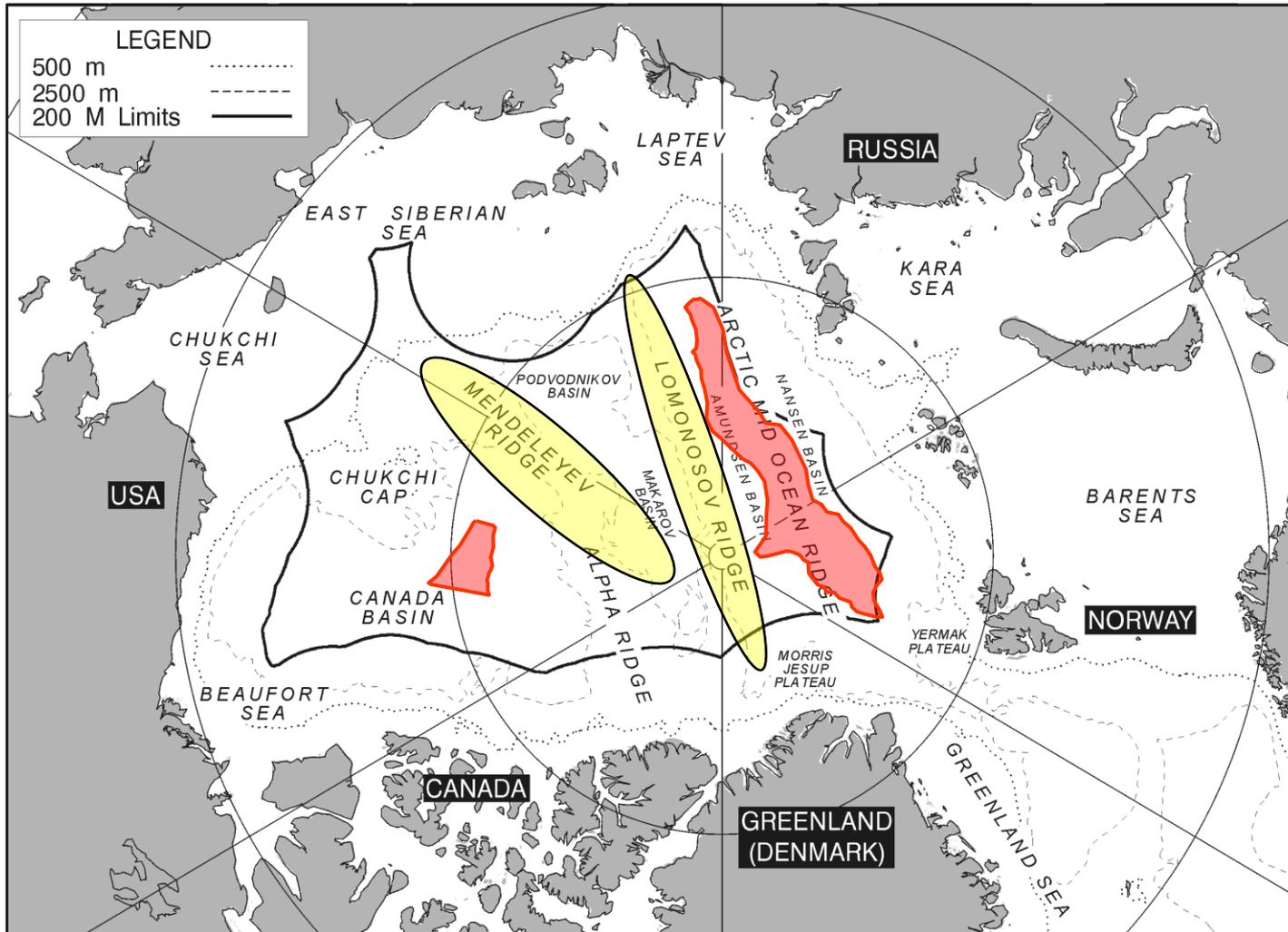
Legal and Policy Regimes

- United Nations Convention on the Law of the Sea (UNCLOS)
 - U. S. not signatory but is “model of compliance”
- U. S. Arctic Region Policy (NSPD-66/HSPD-25)
- U. S. Navy Arctic Roadmap (2009)

UCP Boundaries



Claims in the Arctic



Current 200 nm EEZ



Russian Claim under Article 76, UN Convention on the Law of the Sea (UNCLOS)



Hypothetical International Waters in the Arctic external to EEZs, after all claims are accepted under UNCLOS, Article 76

Arctic Council

- Effective intergovernmental regime for Arctic governance – Ottawa Declaration of 1996
 - Eight member states – all the “Arctic” countries
 - Canada
 - Denmark, including Greenland and the Faroe Islands
 - Finland
 - Iceland
 - Norway
 - Russian Federation
 - Sweden
 - United States of America
 - Plus Permanent Participants – indigenous nations

Requirements for Arctic Operations

- Navigation – GPS is primary
 - Global Differential GPS, provided by NASA or commercial services, enables greater accuracy for survey, science, etc.
- Communication – Inmarsat/Milsatcom to 70-75N
 - Limited bandwidth (<9kbps) higher latitudes – Iridium or HF
- Arctic charts - scant coverage and dated soundings
 - Limited charts above 84 north, most based on foreign soundings and/or data from 19th-20th centuries
- No surface aids to navigation

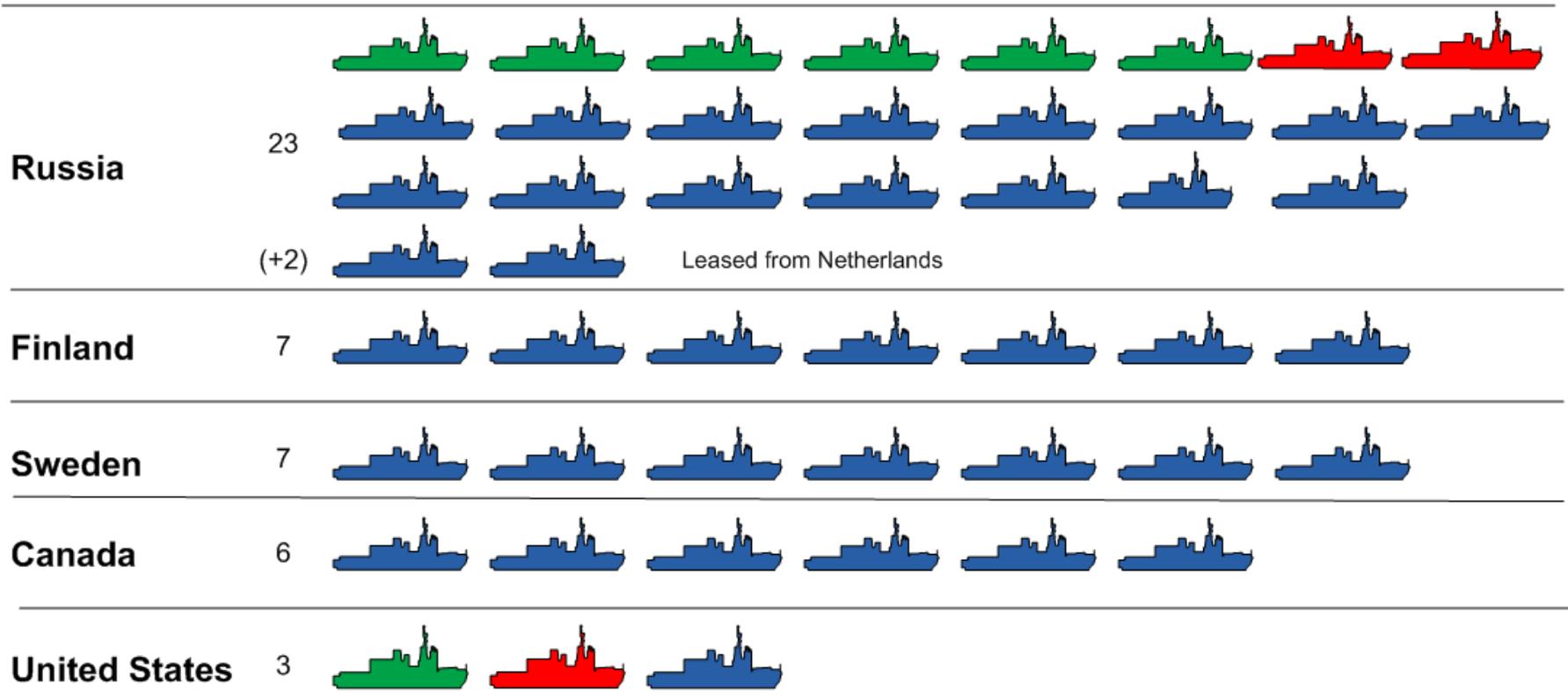
Need to define requirements for communications & charts for surface Arctic operations

U. S. Naval Surface Capabilities

- USCG provides nation's polar icebreaking capability
 - *Must support Navy, science, charting, etc.*
 - *Support both Arctic and Antarctic regions*
 - *USCGC HEALY optimized for science (NSF)*
- Current US Icebreaker fleet (3 ships) -- old and unreliable
 - *None have any significant weapons capability*
 - *New construction requires 10 – 12 years*
 - *Mission analysis in process*
- Neither USCG nor the US Navy have ice capable vessels
- Neither Navy nor USCG have ice qualified surface sailors in any numbers
- Additional icebreakers and ice capable ships will be required

Specify military requirements for icebreakers and ice capable vessels, develop people

Icebreaker Force Laydown



Heavy Icebreaker
(Propulsion plant
> 45,000 BHP)



**Heavy Icebreaker in
Caretaker Status**



Icebreaker
(Propulsion plant
< 45,000 BHP)



Updated: Jan 15, 2009