



**2006–2007
Halsey CHARLIE
Joint Ballistic Missile Defense
Advanced Research Group**

Research Prospectus

U. S. Naval War College
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Fleet Admiral William "Bull" Halsey

The Halsey Group Program provides an enhanced educational experience for a select group of students attending the Naval War College (NWC). The purpose of the program is to foster critical and innovative thinking on current and evolving operational challenges of importance for the Navy.

Military officers in the College of Naval Warfare (CNW) and College of Naval Command and Staff (CNCS) are eligible to apply for the program. Suitably qualified civilian students will also be given consideration. Students are selected for admittance to the program on the basis of the following criteria:

- Sustained superior performance throughout an officer's military career;
- Demonstrated ability or potential to examine operational challenges and articulate their findings and recommendations;
- Operational expertise in the areas of ongoing research

Halsey Group members form one or several teams to address selected operational challenges specifically chosen each year

to reflect new or ongoing areas of particular importance and concern. The primary product of each project is a briefing to the Chief of Naval Operations (CNO) accompanied by a paper documenting the analysis and methodologies employed.

Members of the Halsey Group will be competitively selected from those who apply. Those selected will benefit from their participation in the following ways:

- Mentorship by the President, NWC and senior War College faculty;
- Opportunity for interaction with high-ranking military officers, civilian officials, and distinguished academicians;
- A travel budget to facilitate project research.

Those students who successfully complete the Halsey Group Program will:

- "Be formally designated as a Halsey Group graduate of the NWC. Navy graduates will also receive a Halsey Group AQD."
- A letter from the President, NWC, and special notation on officer appraisal or fitness reports;
- Opportunities to brief projects to senior military officers and civilians in Washington, D.C. and elsewhere.

Halsey Research Group CHARLIE led by Research Professor William F. Bundy, Ph.D and Captain David A. LaBarbera, USN is dedicated to investigation and analysis of emerging BMD capabilities with an emphasis on command-and-control at the operational level. Halsey CHARLIE Research is conducted in two parts. Individual graduate level Advanced Research Projects (ARP) are completed to delve into areas that support BMD capability development. Collective efforts by

the entire Halsey CHARLIE Research Group are focused on assessing command-and-control concepts and warfighting capabilities through war gaming and scenario analysis techniques. Individual contributions by warfighter and planner Halsey CHARLIE Group members adds credibility to the process with leveraging detailed knowledge and practical experience coupled with research completed on individual topics.



William F. Bundy, Ph.D.
USN (RET)
Principal Investigator
NWC '93



Captain David A. LaBarbera
USN
War Gaming Faculty
NWC '97

Halsey Group CHARLIE 2006–2007

In the second year of ARP effort, the Halsey CHARLIE Research Group continues an in-depth investigation of Joint BMD with a focus on Maritime BMD and integrated command and control. So far, several command-and-control concepts and an overall Concept of Operations (CONOPS) draft, developed by the Halsey CHARLIE Group, have been published in the Commander, U.S. Fleet Forces Command approved Maritime BMD Concept of Operations and the draft Commander, U.S. Pacific Command Integrated Air and Missile Defense Concept of Operations.

Efforts during the 2006–2007 NWC Academic Year have been focused on Joint BMD Mission Concepts and on advancing concepts for fleet employment of BMD capabilities. The 2006–2007 Halsey CHARLIE Group includes Army, Navy, Air Force, Marine Corps and a Department of Energy member. All Halsey CHARLIE Group members are engaged in studies leading to a Master of Arts Degree in National Security and Strategic Studies and completion of Joint Professional Military Education Phase I or Phase II, if they are College of Naval Warfare students. All are warfighters or officers who have significant technical and warfare experience.

All Halsey CHARLIE Group members complete individual ARPs, contribute to the group research project and engage in seminars and war games to acquire in-depth knowledge on BMD and the emerging integrated air and missile defense discipline.

This report of Halsey CHARLIE Group activities and areas of individual study is provided so that commanders can take advantage of NWC Advanced Research Projects completed in areas that will assist in increasing Navy and Joint Forces emphasis on fielding a credible, proven BMD capability. This research objective is consistent with Chief of Naval Operations 2007 Guidance.

Naval War College Halsey CHARLIE Group research is sponsored by the Chief of Naval Operations.

Joint Ballistic Missile Defense (JBMD) Mission Concept Study

This Halsey CHARLIE Research Group project will collectively explore the background, assumptions, challenges, concepts, technologies, capabilities and assessment of JBMD through the lens of potential scenarios. This mission concept study will consolidate individual and group research, analyses, and war-game results to highlight shortfalls and to provide recommendations to senior leaders. Additionally, this research will include a comprehensive review of relevant Department of Defense and service component interviews, observations, and experiments to jointly derive conclusions and recommendations to support BMD development. The deliverables from this project will include a brief for the Chief of Naval Operations and a JBMD Mission Concept Study report. Special emphasis will be placed on command-and-control designed to first deter, then disrupt, or negate ballistic missile threats; however, if deterrence should fail, we will recommend methods to defeat the threats targeted at the homeland, friendly forces, friends, and allies. This study will provide results from war games conducted at the Naval War College and assessments made on results of those games.

Halsey participants will assess JBMD C2 integration in sea-based, regional, cross-regional and homeland defense scenarios with the addition of a major combat operation (MCO) opposed-landing scenario during this academic year.

Halsey participants also represent the Navy in Joint exercises and war games (e.g. Exercise ASSURED RESPONSE 07A), attend Integrated Air and Missile Defense Conferences, and support staff research at THIRD Fleet and SECOND Fleet where they leverage findings and knowledge gained through the group assessment process.

Individual Contributing Projects

The following Advanced Research Projects constitute academic requirements for completion of graduate studies at the Naval War College. Contents of these papers reflect individual research results and are not necessarily endorsed by the Naval War College or the Department of the Navy. However, each project paper is peer reviewed by Halsey CHARLIE Research Group members who are all commissioned officers of the uniformed services or civilian authorities in defense related areas. Research is guided by applicable Naval War College research policy and includes references and credits where appropriate with an overall requirement to add to the knowledge base of warfighting and defense planning disciplines.



Commander Mark S. Andersen
United States Navy
College of Naval Warfare

US Navy's Role in Joint Ballistic Missile Defense, Future Weapons, and Ship Acquisition

This advanced research project will explore the role that the Navy should have in the rapidly expanding mission area of Joint Ballistic Missile Defense. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on both the current role of the Navy and possible future roles. It will not be restricted to current programs of record, but will investigate areas of the mission that are best filled by sea-based assets. Once sufficient argument has been made for the roles that could/should be filled by the Navy, the question of what adjustments should be made to future weapons and ship acquisitions and modification programs will be addressed.

CDR Andersen is a Surface Warfare Officer having served in USS *Curtis Wilbur*, *Stethem*, *Clark*, *George Washington*, and *Reuben James* along with staff duty on the OPNAV 86 Staff and COMCRUDESGRU ONE. He is a graduate of the US Naval Academy.



**Lieutenant Commander
Christopher D. Anderson**
United States Navy
College of Naval Command and Staff

Sustainable Sea-based Ballistic Missile Defense Alternatives

This advanced research project will explore alternative Theater Ballistic Missile Defense (TBMD) sea-based assets employing merchant hulls and crews. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on the development and employment of merchant ships to assist the traditional grey hulls to meet some of the present and future TBMD challenges. The areas of concern are shipboard operations, propulsion and power systems, weapons employment and defense systems, civilian and military crewing issues, Command and Control (C2), Rules of Engagement (ROE), logistics, as well as its incorporation into the BMD System.

LCDR Anderson is a Surface Warfare Officer having served in USS *Independence*, *Ramage*, *Churchill*, and Minesweepers along with staff duty at the Military Sealift Command. He is a graduate of the U. S. Merchant Marine Academy and sailed onboard several merchant ships prior to going active duty. He holds a Third Assistant Engineer U.S. Coast Guard license for steam, diesel, and gas turbine.



Major Shawn M. Basco
United States Marine Corps
College of Naval Command and Staff

Marine Corps Landing Force Integrated Air and Missile Defense

This advanced research project will explore Integrated Air and Missile Defense for the Landing Force from the Joint Sea Base. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on watchful investment in the development and fielding of emerging technologies such as CLAWS, G/ATOR, HELRASR, SM-2 BLOCK IV, SM-3, PATRIOT, (M)THEL, FORCEnet, CAC2S, and MAGTFC2 that will combine to deliver a functional landing force BMD capability.

MAJ Basco is an F/A-18 pilot having served in VMFA 115 and 242 as well as service in Operation IRAQI FREEDOM with the 1st Battalion, 5th Marines as a Forward Air Controller. He is a graduate of Southern Illinois University and the Marine Officer Candidate School.



Major John C. Bento
United States Army
College of Naval Command and Staff

Countering the Ballistic Missile Threats

This advanced research project will explore US military options that will deter or neutralize the effects of medium and long range ballistic missile threats. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of advanced BMD capabilities. This work will focus on active defense and attack operations that will reduce risks presented by emerging ballistic missile threats.

MAJ Bento is a US Army Intelligence and Field Artillery Officer who served with the 103rd Field Artillery Brigade, 415th Military Intelligence Battalion, 40th Infantry Division, 1st Cavalry Division, 1st Armored Division and 11th Armored Cavalry Regiment. He is a graduate of the University of Rhode Island Army ROTC.



Major Augustin P. Briguet
United States Air Force
College of Naval Command and Staff

Network Centric Missile Defense: A Two-Way Street

This advanced research project will examine the need for common data elements, protocols and web services that apply to tactical systems and integration of BMDS element planning, battle-management message and analysis tool sets. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on Aegis and Patriot integration into the BMDS to illustrate how overall system effectiveness depends on implementation of standardized tactical message sets and protocols.

Maj Briguet is an Acquisition Officer having served in the 46th Test Squadron, USAF Test Pilot School, Air Force Institute of Technology, National Reconnaissance Office, and the 452 Flight Test Squadron. He is a graduate of the Embry-Riddle Aeronautical University Air Force ROTC.



Commander Angelo D. Burstion
United States Navy
College of Naval Warfare

Joint Ballistic Missile Defense Integration Across Combatant Commands

This advanced research project will explore how BMD elements should be integrated across Combatant Commands. Research will include a comprehensive review of pertinent Department of Defense and Service Component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This advanced research project will discuss some of the elements to provide a successful interface for integration among Combatant Commands, through discussion, scenario analysis, joint integration, recommendations and conclusions.

CDR Burstion is a Surface Warfare Officer having served in USS *Chancellorsville*, *Vella Gulf*, and *Klaking* along with staff duty as a Missile Defense Officer in the U.S. Pacific Command Staff and COMUSNAVCENT. He is a graduate of Hampton University Navy ROTC.



**Lieutenant Commander
Gregory J. Gahlinger
United States Navy
College of Naval Command and Staff**

Aegis Integration with Joint Regional Air and Missile Defense Forces in U.S. Central Command

This advanced research project will explore the issues and possible solutions for closer integration and employment of U.S. Navy Aegis platforms in Joint Regional Air and Missile Defense forces in the U.S. Central Command Area of Operations. This paper will describe the unique Air and Missile defense capabilities that U.S. Navy Aegis platforms bring to the Central Command realm and how they may be more effectively integrated with both U.S. Air Force Command and Reporting Center Airborne Warning and Control and U.S. Army Air Defense Fire Control Officer organizations. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities in conjunction with traditional Air Defense operations in the Central Command AOR.

LCDR Gahlinger is a Surface Warfare Officer having served in USS *Benfold*, *Higgins*, *John Paul Jones*, and *Valley Forge* along with staff duty at COMFIFTHFLT, Navy Warfare Development Command Newport, and AEGIS Training and Readiness Center Dahlgren. He is a graduate of the University of Florida Navy ROTC.



**Commander Christopher H. Halton
United States Navy
College of Naval Warfare**

Command and Control Structure for an Integrated Ballistic and Cruise Missile Defense Maritime Task Group

This advanced research project will explore the integration of Ballistic and Cruise Missile Defense in the maritime force within a potentially complex air warfare environment. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD and CMD capabilities. This work will focus on a missile defense maritime Surface Action Group (SAG) operating in a forward area conducting deterrence and security operations. The SAG is assigned two missions: Sea-based ballistic missile defense, and defense of U.S. maritime forces and friendly shipping against cruise missile attack. The work will examine and recommend command and control structures and relationships external and internal to the SAG. A concept of operations for the SAG and the joint force will also be developed using current force structure and capabilities.

CDR Halton is a Surface Warfare Officer who commanded USS *Shoup* and *Black Hawk*. He served in USS *Cayuga* and *Fanning* along with staff duty in the OPNAV N6 Staff, BUPERS, COMCRUDESGRU THREE, COMDESRON 20, and COMDESRON 32. He is a graduate of the University of Idaho Navy ROTC.



Major Edward C. Harris
United States Air Force
College of Naval Command and Staff

Joint Ballistic Missile Defense Mission Concept Study

This advanced group research project will explore the background, assumptions, challenges, concepts, technologies, capabilities and assessment of JBMD through the lens of potential scenarios. This study will consolidate individual and group research, analyses, and war-game results to highlight shortfalls and to provide recommendations to senior leaders. Additionally, this research will include a comprehensive review of relevant Department of Defense and service component interviews, observations, and experiments to derive conclusions and recommendations to support BMD development capabilities, ultimately briefed to the Chief of Naval Operations. Special emphasis will be placed on command and control to first deter, then disrupt, or negate Ballistic Missile Threats; however, if deterrence fails, we will recommend methods to defeat the threats targeted at the homeland, friendly forces, friends, and allies. This study will provide results from war games conducted at the Naval War College and assessments made on the results of those games.

Maj Harris is a Meteorological Officer having served in the Air Force Institute of Technology, 7th Weather Squadron, 305th Air Mobility Wing along with staff duty in the Tanker Airlift Control Center and Air Mobility Command. He is a graduate of Florida State University and Air Force Officer Training School.



Major Troy C. Kimball
United States Air Force
College of Naval Command and Staff

Enhancing Ballistic Missile Defense with Strategic Deterrence and Communication Concepts

This advanced research project will explore how well the United States is using all four elements of BMD. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on current use of passive defense, attack operations, and C4ISR in addition to active defense systems. It will also discuss the additional elements of strategic communication and strategic deterrence to further strengthen our BMD objectives. Focus in this project will be given to current threats but attempt to draw conclusions that will have an impact on future threats and scenarios.

Maj Kimball is a Space and Missile Operations Officer having served in the 50th Space Wing and 90th Space Wing with staff duty at USSTRATCOM. He is a graduate of the Michigan Technological University Air Force ROTC.



Major David M. Learned
United States Air Force
College of Naval Command and Staff

A Case for Centralized Ballistic Missile Defense Command & Control

This advanced research project will examine options and recommend a command and control concept to enable joint war fighters to provide effective BMD against threats spanning geographic combatant commands. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on the command relationship between US European Command and US Central Command as it pertains to defending against ballistic missile threats against strategic interests and US forces stationed in Western Europe during the 2008 to 2012 timeframe. It examines relationships, identifies gaps, and compares three different command structures to make a case for centralized command and control of BMD.

Maj Learned is an Acquisition and Space Officer having served in JTIDS JPO, 2nd Space Launch Squadron, and Ops Div 4 with staff duty in the Pentagon and USAFE Staff. He is a graduate of Park University and Air Force Officer Training School.



Lieutenant Commander Hans E. Lynch
United States Navy
College of Naval Command and Staff

Supporting Aegis Ballistic Missile Defense Ships on Long Endurance Patrols

This advanced research project will examine proposals for providing better support to Aegis Cruisers and Destroyers that are performing long endurance BMD missions. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on the full spectrum of logistic support required to operate Aegis ships at sea on BMD missions with parallels drawn from the successful Fleet Ballistic Missile Submarine logistics and long endurance patrol and maintenance program.

LCDR Lynch is a Surface Warfare Officer having served in USS *Boxer*, *Princeton*, *Stethem*, and *Bunker Hill* along with staff duty in the THIRD Fleet. He is a graduate of Purdue University Navy ROTC.

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Commander David J. Meron
United States Navy
College of Naval Warfare

Command Center Relationships, Interactions, and Information Exchange

This advanced research project will explore the complexity of Command Center relationships, required interactions, and information exchange. Cross-regional situations within the Central Command and European Command Areas of Responsibility will be a specific area of study as well as theater specific equipment and common operational picture requirements. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations and experiments to derive conclusions and recommendations that will support the development of BMD capabilities.

CDR Meron is an E-6B pilot having served in Fleet Air Reconnaissance Squadrons Three and Four, and Strategic Communications Wing One along with staff duty at COMSEVENTHFLT and NORAD/USSPACECOM Missile Warning Center. He is a graduate of National University and Navy Aviation Officer Candidate School.



**Lieutenant Commander
Richard M. Meyer**
United States Navy
College of Naval Command and Staff

Weapons and Sensor Coordination in the Ballistic Missile Defense System

This advanced research project will explore the benefits of distributed weapons and sensor coordination to the effectiveness of the BMDS. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus on the inadequacy of the current battle management systems to efficiently and effectively direct the BMD fight.

LCDR Meyer is a Surface Warfare Officer having served in USS *Mason* and *Vella Gulf* along with staff duty in the COMDESRON 18, CINCLANTFLT, and OPNAV N86. He is a graduate of the U.S. Naval Academy.



Lawrence M. Pace
Department of Energy / National
Nuclear Security Administration
College of Naval Warfare

Ballistic Missile Weapons Effects

This advanced research project will explore weapons of mass destruction effects employed through ballistic missiles to include nuclear, biological, or chemical weapons. Research will address weapons effects that make the ballistic missile a greater danger than other forms of attack. Research will also include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will yield a probabilistic model that can be used to determine and assess what level of damage a warhead may cause.

Mr. Pace is a Senior Management Advisor for the NNSA Deputy Administrator (NA-2). While in Washington D.C., he served as Core Technical Group Manager for NNSA's Senior ES&H Advisor (NA-53) and E-Gov Program Manager (President's Management Agenda) in the OCIO (NA-65). Prior to Washington, Mr. Pace served as the Chief of Staff to the Albuquerque Operations Office Manager. He is a graduate of Prairie View A&M University.



Captain Patrick C. Rabun
United States Navy
College of Naval Warfare

Manning and Training Options for Navy Ballistic Missile Defense Forces

This advanced research project will examine options for manning and training personnel who provide the capability to conduct BMD from U.S. Navy warships. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. Is this new capability simply one more war game area that our multi-mission Sailors can be expected to master? Or would it be more cost-effective to establish separate BMD detachments which embark properly equipped warships when that mission is assigned? Perhaps some combination of these two approaches is more appropriate. Projected watch-station requirements and response-time demands will be analyzed against the training needed to achieve and maintain prescribed proficiency levels.

CAPT Rabun is a Surface Warfare Officer with extensive Aegis-cruiser experience—having served as XO of USS *Chosin* and CO of USS *Valley Forge*. He is next slated to command USS *Cape St George*. His staff tours include FMB/N86, PERS-41, and COMNAVSURFOR. He is a graduate of the U.S. Naval Academy.



Lieutenant Commander Michael E. Ray
United States Navy
College of Naval Command and Staff

Meeting Aegis BMD Presence Demand

This advanced research project will explore methods for the Navy to meet combatant commander requirements for Aegis BMD platforms. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work will focus upon combatant commander demand requirements for Aegis BMD platform presence, and ways for the Navy to train and schedule ships to satisfy the demand while maintaining flexibility to execute its other core mission areas.

LCDR Ray is a Surface Warfare Officer having served in USS *Port Royal*, *Paul Hamilton*, *Ross*, and *Guam*. Ashore, he served on the staff of the Deputy Chief of Naval Operations for Plans, Policy, and Operations (N3/N5). Lcdr Ray is a graduate of the University of Pennsylvania Navy ROTC and Georgetown University Graduate School.



Major Stephen M. Russell
United States Air Force
College of Naval Command and Staff

Joint Battle Management for Active Ballistic Missile Defense

This advanced research project will explore battle management concepts to address the challenges of managing a dynamic BMD engagement with interdependent service-specific elements spanning multiple combatant commander areas of responsibility. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations to support the development of BMD capabilities. This work will review and compare selected battle management systems and methods currently in use by different services or warfighting cultures and assess the applicability of such concepts to the BMD challenge. The heart of this research will focus on the desired characteristics (technical, procedural, etc.) of an effective battle management system for BMD and the ability of current systems or systems in development to provide these capabilities.

Maj Russell is a Flight Test Engineer and Program Manager having served in the 91st Missile Wing, National Air Intelligence Center, Air Force Institute of Technology, USAF Test Pilot School, 452nd Flight Test Squadron along with staff duty in the Air Force Technical Application Center. He is a graduate of the University of Illinois Air Force ROTC.



**Lieutenant Commander
Zoah Scheneman
United States Navy
College of Naval Command and Staff**

The Impact to Naval Fleet Operations as the Ballistic Missile Defense System Matures

This advanced research project will explore the role of Aegis BMD ship employment in the overall BMD system with special emphasis on fleet multi-mission tasking and the need to dedicate ships to theater and strategic deterrence missions. Research will include a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will address Aegis BMD ship employment and tasking at the operational level. This project will view Aegis BMD ship employment and force allocation from a maritime force total mission perspective.

LCDR Scheneman is a Surface Warfare Officer having served in USS *Briscoe* and *Mcfaul* along with a background in information systems. He is a graduate of Old Dominion University and U.S. Naval Officer Candidate School.



**Colonel William R. Stanley, Jr.
United States Army
College of Naval Warfare**

The United States Navy Ballistic Missile Defense Interceptor Missiles

This advanced research project will explore the role of the Navy's capability to provide long-range surveillance and tracking in defense against Intercontinental and Intermediate Range Ballistic Missiles that provide a level of protection to our forward deployed forces and allies against ballistic missile attacks. Additionally, it will analyze the Navy's BMD ship employment in the overall BMD system to show the current ballistic missile interceptor production rate is inadequate to defend against the potential number of ballistic missile threats. Research will include reviews of basics of BMD and the ballistic missile threats faced by the United States. This paper will also outline the Navy's capabilities for midcourse and terminal defense and describe how the Navy's interceptors are currently deployed. Results will be derived from service component literature, interviews, observations, and experiments to obtain conclusions and recommendations that address recommendations for production, allocation, and storage of current and future Navy ballistic missile interceptors.

COL Stanley is a Logistics Officer having served in 530th S&S Battalion and the 402nd Battalion Commander along with staff duty at HQ EUCOM, HQ Department of the Army as well as a Secretary of Defense Fellow. He is a graduate of the University of Missouri Army ROTC.



Major Stephen D. Terstegge
United States Army
College of Naval Command and Staff



Lieutenant Commander
John J. Zuhowski
United States Navy
College of Naval Warfare

Ballistic Missile Defense in the European Theater: Political, Military and Technical Considerations

This advanced research project examines BMD planning in the international arena, especially as it concerns the protection of Europe from an Iranian threat. Research includes a comprehensive review of pertinent Department of Defense and service component literature, interviews, observations, and experiments to derive conclusions and recommendations that will support the development of BMD capabilities. This work focuses on how the United States must work through issues that overlap between the *political*, *military*, and *technical* domains in international security cooperation in order to effectively weave BMD into the European security fabric. This serves the dual ends of providing protection for European friends and allies in the short term, and the U.S. homeland in the longer term. This paper proposes that both the United States and Europe must use NATO as the primary integrator of BMD assets as a means to fuse these three planning domains using a capabilities-based planning approach.

MAJ Terstegge is a Strategist having served in the US Army's AIR DEFENSE Artillery School, 82nd AIRBORNE, 1st Armored Division, 173rd Airborne Brigade along with duty in the JFC Naples Staff. He is a graduate of California State University Army ROTC.

Integrated Ballistic Missile Defense in an Expeditionary Strike Group

This advanced research project will explore the integration of Ballistic Missile Defense in both the maritime forces and land forces within the Area of Operations (AOA). Research will include a comprehensive review of pertinent Department of Defense and service component literature, capabilities and limitations, and communications. This work will focus on a missile defense of an Expeditionary Strike Group (ESG) and the AOA. The ESG is assigned two missions: A successful opposed landing on a hostile shore and defense of the ground troops until handover to the Ground Component Commander. The work will examine and recommend command and control structures/relationships external and internal to the ESG.

LCDR Zuhowski is a Surface Warfare Officer who commanded USS *Shamal*. He served in USS *Austin*, *Belleau Wood*, *Oak Hill*, and *Ashland* along with instructor duty at the United States Naval Academy and Surface Warfare Officers School. He is a graduate of the United States Naval Academy.

Presentation Plans

Halsey briefers will present key findings and assessments from our group project on BMD scenarios in short briefings on selected individual Advanced Research Projects with relevance to command interests. Halsey Points of contact include:

William (Will) F. Bundy, Ph.D.
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