



NAVAL RESEARCH WORKING GROUP THESIS RESEARCH WORKING GROUP MEETING 15-1

PROGRAM 30 MARCH - 3 APRIL 2015

NAVAL POSTGRADUATE SCHOOL
Monterey, CA

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Naval Research Program and Events,
visit: NPS.edu/research/NRP
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NPS Naval Research Program Office at
NPS_NRP_POC@nps.edu



ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

- Space and Naval Warfare Systems Command (SPAWAR), CDR Brian Erickson**
- N116 Cybersecurity Figure of Merit
 - N280 Cybersecurity and Patching Periodicity as it Applies to System of Systems (SOS) Risk
 - N281 Cybersecurity and Commercial Off The Shelf (COTS) IT Product End of Life (EOL) Challenges
 - N282 Cybersecurity and Industrial Control Systems (ICS)

- Strategic Systems Programs (SSP), CAPT Jim Melvin**
- N214 Trident II (D5) Service Life Prediction Strategies (SSP-OT1)
 - N215 Missile Gas Venting Effects During Underwater Launch (SSP-PN2)
 - N216 Rocket Motor Deflagration Effects (SSP-PN-1)
 - N217 Human-Machine Interface With Nuclear Weapons Security Systems (SSP-NW2)
 - N218 Tolerances in CAD (SSP-SW6)
 - N219 Artificial Intelligence (SSP-SW5)
 - N220 Optimizing the 3D Environment for Fast Rendering (SSP-SW4)
 - N221 Avatar Implementation Using Open Source (SSP-SW3)
 - N223 3D Modeling Submarine Missile Compartment (SSP-SW2)
 - N225 Trident II (D5) Missile Nose Fairing Construction (SSP-ME1)
 - N226 Acoustics and Submarine Ranging (SSP-MA3)
 - N228 Mathematical Free Flight Missile Probability of Success (SSP-MA2)
 - N229 Mathematical In-Tube Missile Probability of Success (SSP-MA1)
 - N231 Moore's Law and Wireless Interference (SSP-EC5)
 - N232 Missile Tube Wireless Interference (SSP-EC4)
 - N234 Missile Tube Wireless Interference

AGENDA

NPS Naval Research Program - Naval and Thesis Research Working Group Meeting 15-1	
Mon, 30 March Day 1	Tues, 31 March Day 2
Wed, 1 April Day 3	Thurs, 2 April Day 4
Fri, 3 April Day 5	
0700	Topic Sponsor Sync Session Dudley Knox Library
0730	No-host Mixer Starbucks DKL
0800	Keynote Speakers Plenary Session One
0830	Revolving Panel Sessions Breakout Sessions
0900	Plenary Session Two
0930	Revolving Panel Sessions Breakout Sessions
1000	Plenary Session Three
1030	Lunch Break
1100	Revolving Panel Sessions Breakout Sessions
1130	Lunch Break
1200	Plenary Session Four
1230	Revolving Panel Sessions Breakout Sessions
1300	Plenary Session Five
1330	Lunch Break
1400	Plenary Session Six
1430	NRP Hotwash RSPO
1500	Topic Sponsors RTB
1530	Student, Faculty & Topic Sponsor Coordination Social Trident Room
1600	Sponsor Welcome & Check-In
1630	No-host Mixer Trident Room
1700	Student, Faculty, Sponsor & Staff Social Trident Room
1730	Curriculum Level Briefings Program Spaces
1800	Topic Sponsors RTB
1830	Topic Sponsors RTB
1900	Topic Sponsors RTB

Activities in King Hall on Tuesday and Dudley Knox Library (DKL) Wednesday & Thursday unless noted
In-progress Reviews (IPRs) coordinated independently between Sponsors and PIs Wednesday & Thursday

All events will occur in the Dudley Knox Library, except where noted.

ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

N9 - Warfare Systems, Mr. Christopher Marsh

- N145 Transition of Mine Countermeasures (MCM) Responsibility from MCM-1 Avenger Class to Littoral Combat Ship (LCS) Class
- N205 Extending Open Systems Architecture (OSA) with ACDM Open-Source Java for Liquid Robotics WaveGlider SV-3
- N206 Propagating Uncertainty in Hierarchical Combat Models
- N263 Unmanned Undersea Systems
- N264 Transition of Naval Mine Countermeasures (MCM) from current MCM Forces to the Littoral Combat Ship (LCS) MCM Mission Package
- N265 Absence of Networks
- N345 Reserve Manning in Operational Aviation Squadrons
- N347 Boundary Layer Turbulence Over Apertures in High Speed Flight
- N349 Representing the Value of Carrier Aviation Presence
- N354 Comprehensive logistics management for the Sea Base
- N366 LCS Crew Swap Optimization Through NUFEA

Naval Satellite Operations Center, CAPT Jeffrey Marshall

- N124 Network Performance Measurement & Analysis
- N125 Satellite Operations in A2AD environment
- N126 Defensive Space Tactics, Techniques & Procedures
- N127 Satellite Operations Mission Planning Process

NAVSEA 05T, CDR Jason Fox

- N112 Electromagnetic Railgun

NUWC Division, Keyport, Mr. David Mortimore

- N184 Cybersecurity for USW Test Vehicles and UUVs/UMSs
- N185 Future Communication Technologies for UUVs/UMSs and USW Ranges
- N186 Multi-Event Multi-Scenario Capability for USW Ranges
- N188 Technical Health Assessment Methods and Technology
- N192 UUV/UMS Propulsion Energy Systems
- N194 Test and Evaluation Cyber Range
- N195 USW Range Event Planning System

EVENT DESCRIPTION

Plenary Session

During the Plenary Session, Topic Sponsors briefly introduce their organization and research topics. The intent is to provide NPS faculty and students an introduction to the topics and Topic Sponsors, with discussions to continue during individual Breakout Sessions and the scheduled Revolving Panel Sessions.

Revolving Panel Sessions

During the Revolving Panel Sessions, Topic Sponsors will have an assigned window to brief their topics in a small audience format. The intent is to provide NPS faculty and students with a greater in-depth discussion of topic details.

Breakout Sessions

Each Topic Sponsor presenting has an assigned break-out location, as specified on the program insert. NPS faculty and students are invited to meet with Topic Sponsors during Breakout Sessions to discuss topics and begin scoping research. Topic Sponsors manage their own Breakout Session schedules.

Topic Sponsor Outbriefs and Hotwash

Topic Sponsor Outbriefs provide a formal opportunity for Topic Sponsors to give feedback of metric outcomes from the event to the NPS Dean of Research. The Topic Sponsor Hotwash is an informal discussion of the event, including suggestions for improvement.

LIEUTENANT GENERAL RICHARD MILLS KEYNOTE SPEAKER



Lieutenant General Richard P. Mills is a native of Huntington, New York.

He currently serves as the Commander, U.S. Marine Corps Forces Reserve and Marine Forces Northern Command.

Prior to this assignment, Lieutenant General Mills served as the Commanding General Marine Corps Combat Development Command, Quantico, VA,

Deputy Commandant for Combat Development and Integration, Headquarters U.S. Marine Corps, and Commander of Marine Corps Forces Cyberspace Command. During this tour, he signed the original Charter that established the Marine Corps' Thesis Research Working Group (the predecessor to the Naval Research Working Group).

Lieutenant General Mills is a highly decorated combat leader and the first Marine Corps General Officer to command NATO forces in combat.

He is an avid New York Giants football fan, and a friend of the Naval Postgraduate School.

ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

Marine Forces Reserve (MFR), Mr. Robert McGuiness

- M137 Inspector-Instructor Manpower Analysis
- M138 Inspector-Instructor Training Curriculum Development & Effectiveness Analyses
- M140 Business Process Simulator/Computer-Aided Training Tool
- M141 Reserve Training Center Decision Support Tools – Hurricane Preparation Trainer
- M142 Reserve Training Center Decision Support Tools – Project continuation
- M284 Increasing Capacity of Marine Forces Reserve through Improved Training and Education
- M346 Reserve Equipment Redistribution Optimization Management Tool

N2/N6 - Information Dominance, LCDR Jason Hurley

- N128 Characterization and Quantification of Ocean Model Dependence on Foreign Environmental Satellites
- N200 Crowd Sourcing Human Analyst Playbooks for Insider Threat Mitigation
- N201 Darknet and DoD Networks: Obfuscation, Spoof Detection, and Elimination
- N250 Alternative Sources of Organic Vertical Meteorological Profile Data within the CSG/ESG
- N251 Space Based Altimetry – Operational Effectiveness of Joint NASA/French SWOT (Surface Water and Ocean Topography)
- N273 Cognitive Models for System of Systems Effectiveness
- N339 Vector Relational Data Modeling of Big Data Integration to Enable Scalability of the Cyber Threat Response (CTR)
- N344 Cyber Threat Response (CTR) Model Extension for Advanced Intrusion Detection and Response
- N357 Detection of Aerosol Particulates from Satellite-Based Observations of Shadows Cast on Land Surfaces

N4 - Fleet Readiness & Logistics, CDR Karen Dallas

- N165 Redesign of the Towed Array to Achieve More Energy Efficient Streaming
- N169 CAD Interoperability for Navy Reuse in Additive Manufacturing (AM), 3D Printing, Maintenance and Training
- N259 Viability of Waste to Energy Technologies for Naval Facilities

ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

Marine Corps Systems Command (MCSC), Mr. C. Scott Bey

- M147 Cost Analysis – Broad Area Study
- M268 CYBER Acquisition
- M285 Centralized Operating Forces Support Center
- M286 Amphibious Vehicle Test Branch – Human Factors
- M287 Expeditionary Fire Support System Futures Study
- M288 Amphibious Vehicle Test Branch – Surf Zone Characterization
- M289 Amphibious Vehicle Test Branch – Sequential Testing
- M290 Anti-access/Anti-ship Capability of Artillery Fired Projectiles from Shore
- M291 “Big Data” – Logistics Master Data Management Within the Context of a Fully Integrated Logistics IT Portfolio
- M292 GCSS-MC – Enterprise Systems Network Quality of Service (QoS)
- M293 Utilization of Intermittent Acoustics in a Networked Environment
- M295 Impact of Self Loading/Unloading Pallets to V-22/CH-53 Amphibious ?Supply Operations
- M296 Low Power Wireless Networks
- M297 Training & Readiness (T&R) and Live, Virtual and Constructive (LVC) Training
- M298 PEO-LS: Non-Traditional Repair of Armor Steels on Tactical Wheeled Vehicles
- M299 Framework for HSI analyses and modeling and simulation of the human components to reduce risks
- M301 An Analysis of the Lifecycle Management of Marine Corps Material Handling Equipment/Construction Equipment (MHE/CE)
- M329 Fusion of Wireless Attack Ontology Points
- M330 PEO-LS: ACV 2.0 HIGH WATER SPEED

Marine Forces Cyberspace Command (MFCC), Maj Cameron Grams

- M148 CSSAC – A Broad Study
- M170 Patch and Log Management in a Bandwidth Constrained Environment
- M175 Attaining I&W in Cyberspace
- M176 Future Threats/Threat Environment in Cyberspace
- M350 CEWCC, Structural Adaptations for MAGTF Contemporary and Future Operating Environments
- M352 COIN in Cyberspace
- M353 Command and Control for the New Norm
- M356 Cyber Acquisitions Integration
- M358 Electronic Warfare and Cyberspace Convergence
- M361 Extension of Cyberspace Platform Capabilities

WALTER F. JONES, Ph.D. EXECUTIVE DIRECTOR



Dr. Walter F. Jones joined the Office of Naval Research in September 2007, as executive director. He is the senior civilian manager at ONR, and provides executive, technical, and scientific direction in the performance of ONR's mission of planning and managing science and technology research for the Department of the Navy. He works closely with ONR's Directorate leads in the identification, prioritization, and support of specific areas of science and technology development.

Jones most recently was director, Plans and Programs, Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio. He was responsible for developing and managing the processes that defined AFRL's \$3-billion annual investment in technologies for future Air Force systems. These systems include space, weapons, aeronautics, and command, control, communications, computers, intelligence, surveillance and reconnaissance.

Jones has held a wide variety of positions in government and academia. He has served as director, Aerospace and Materials Sciences, Air Force Office of Scientific Research, Arlington, Va. In this capacity, he planned, coordinated, and executed a \$55-million basic research program, including solid mechanics, fluid mechanics, materials science, and propulsion. He has also served as a senior program analyst with the Office of the Deputy Director of Central Intelligence for Community Management. He has held several positions with the Air Force, including deputy for Research Sciences with the Office of the Assistant Secretary of the Air Force (Acquisition), and deputy for Science and Technology with the Office of the National Security Space Architect. In addition, Jones has held faculty positions at the University of Florida, University of Tennessee, and Clemson University.

He received his Ph.D. and M.S. in engineering mechanics and a B.S. in mechanical engineering from Clemson University. He also has an M.S. in national resource strategy from the Industrial College of the Armed Forces at Ft. Lesley J. McNair in Washington, D.C.

ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

This program lists research topics being briefed at the plenary sessions. A comprehensive list of all available research topics and specific Topic Sponsor point of contact information can be found on the the Naval Research Program Topic Submission Site at <https://my.npd.edu/web/naval-research-program/>.

CENTCOM, LCDR Walter Kulzy

- N248 Decision Support for Irregular Warfare: New Wargame Insights via Post-Wargame Experimentation and Analysis

College of Distance Education & Training (CDET), Maj Mike Gavin

- M303 Integrating xAPI Standards to Support eLearning
- M304 BYOD Strategies to Support eLearning
- M057 Metrics for Courseware Performance
- M058 Self-Authoring Tools and Rule Sets for Developing User-Generated Content
- M059 Business Process Reengineering for Implementation of Remedy
- M060 MCEITS Migration – Challenges and Opportunities
- M061 Virtualization as a Practical Solution for Browser Agnosticism
- M062 eLearning Measures of Effectiveness
- M063 Click to Finish Distance Learning Courseware – Legitimate Education & Training vice Simple Completion

Commander, Naval Surface Forces (COMNAVSURFOR), CDR Jerry Olin

- N227 Improving Surface Warfare Officer Retention
- N233 Improving the Fleet's Distributed Lethality Capability
- N235 Logistics in Support of the Fleet's Distributed Lethality Concept
- N236 Surface Navy Basic Phase Training Customization
- N237 Modeling and Analysis of Surface Navy Shipboard and Intermediate Maintenance Processes
- N240 Modeling and Analysis of Surface Navy Availability Maintenance Processes

Expeditionary Energy Office (E2O), Capt Anthony Ripley

- M109 Ship to Shore Fuel Systems
- M110 Energy and Behavioral Factors
- M252 Naval Force Fuel Mixture – Operational Reach Analysis
- M255 Connector Availability for Fuel Movement

ATTENDING TOPIC SPONSORS AND PLENARY SESSION TOPICS

HQMC Aviation (HQMC AVN), Maj Chris Larson

- M139 USMC Air Traffic Control (ATC) Training Database (fleet wide). Identify Success Criteria Early on in a Marines' Career.
- M342 USMC Next Generation UAS
- M343 USMC Aviation Digital Interoperability
- M362 HQMC Avn – ALIMOS MOS 6694
- M363 HQMC Avn – Historical vs. Future Pilot Retention
- M364 HQMC Avn – Officer MOS Contract Length
- M365 HQMC Avn – USMC Aviation Maintenance

HQMC C4, Mr. Kenneth Bible

- M187 Posturing the MCEN to Better Support Deployed USMC Operations

Installations & Logistics, LtCol Dan Reber

- M101 Mobile Support for GCSS-MC Using Handheld Devices

Manpower and Reserve Affairs (M&RA), LtCol Anthony Licari

- M107 Optimizing Reserve Individual Mobilization Augmentee (IMA) Support to the Active Component (AC)
- M108 Chronically Short MOSs in the Reserve Component
- M161 A Blended Retirement Plan: Can it sustain Marine mid-career retention?
- M162 USMC Manpower Quality, Recruit to MOS match, Defining Success
- M164 Scenario Analysis, Policy Evaluation, and Forecasting Marine Corps Manpower Using Agent-Based Simulation Modeling JAVA Code
- M167 Manpower Process Improvements, High Quality People

MARFORPAC, Ms. Nicole Griffin

- M160 Pacific Islands Coastal Marine Spatial Planning

Marine Corps Combat Development Command (MCCDC), Dr. George Akst

- M163 Exploring Potential Alternatives Using Simulation and Evolutionary Algorithms
- M199 Developing analytic capability in Combat XXI

Marine Corps Modeling and Simulation Management Office (MCMSMO), Dr. George Akst

- M157 Education and Training Continuum in the 21st Century
- M158 Live-Virtual-Constructive (LVC) Planning
- M159 Commercial Gaming Industry Best Practices