

28TH ANNUAL NATIONAL TEST & EVALUATION CONFERENCE & DISPLAYS



MARCH 12-15, 2012
WWW.NDIA.ORG/MEETINGS/2910

THE WESTIN HILTON HEAD ISLAND RESORT ► HILTON HEAD, SC

EVENT #2910

MONDAY, MARCH 12 — PAGES 3-5

- 10:00 am - 6:00 pm Registration Open — Savannah Foyer
- 10:00 am - 4:00 pm Displayer Setup — Savannah Foyer
- 10:00 am - 12:00 noon Session 1 Tutorials — Archer East, Archer West, Danner East, Danner West
- 12:00 noon - 1:00 pm Lunch Break (Not included in registration fees)
- 1:00 pm - 2:45 pm Session 2 Tutorials — Archer East, Archer West, Danner East, Danner West
- 2:45 pm - 3:15 pm Afternoon Break — Savannah Foyer
- 3:15 pm - 4:30 pm Session 3 Tutorials — Archer East, Archer West, Danner East, Danner West
- 4:30 pm Tutorials Conclude
- 5:00 pm - 6:00 pm Welcome Reception in Display Area— Savannah Foyer

TUESDAY, MARCH 13 — PAGES 5-8

- 7:00 am - 5:00 pm Registration Open — Savannah Foyer
- 7:00 am - 8:00 am Continental Breakfast — Savannah Foyer
- 8:00 am - 2:45 pm Plenary Session — Archer & Barnwell Ballroom
- 10:00 am - 10:30 am Morning Break in Display Area
- 12:00 noon - 1:45 pm Walter W. Hollis Award Presentation — Calibogue Ballroom
- Luncheon Guest Speaker
- 2:45 pm - 3:15 pm Afternoon Break in Display Area — Savannah Foyer
- 3:15 pm - 5:45 pm Parallel Sessions — Archer East, Archer West, Danner East, Danner West
- 5:45 pm - 7:00 pm Networking Reception in Display Area

WEDNESDAY, MARCH 14 — PAGES 9-12

- 7:00 am - 5:00 pm Registration Open — Savannah Foyer
- 7:00 am - 8:00 am Continental Breakfast — Savannah Foyer
- 8:00 am - 2:30 pm Plenary Session — Archer & Barnwell Ballroom
- 10:00 am - 10:30 am Morning Break in Display Area — Savannah Foyer
- 11:30 am - 1:00 pm Tester of the Year Awards Luncheon — Calibogue Ballroom
- 2:30 pm - 3:00 pm Afternoon Break in Display Area — Savannah Foyer
- 3:00 pm - 5:30 pm Parallel Sessions — Archer East, Archer West, Danner East, Danner West

THURSDAY, MARCH 15 — PAGE 13

- 7:00 am - 12:00 noon Registration Open — Savannah Foyer
- 7:00 am - 8:00 am Continental Breakfast — Savannah Foyer
- 8:00 am - 12:05 pm Plenary Session — Archer & Barnwell Ballroom
- 10:20 am - 10:50 am Morning Break in Display Area — Savannah Foyer
- 10:50 am - 2:00 pm Dismantle Displays — Savannah Foyer
- 12:05 pm Conference Adjourns

MONDAY, MARCH 12 — TUTORIALS**10:00 am - 6:00 pm Registration Open****10:00 am - 12:00 pm Session 1 Tutorials (Additional fee required to attend tutorials)****TRACK A** DANNER EAST**13707 — FUNDAMENTAL STATISTICAL CONCEPTS IN TEST AND EVALUATION**

A major purpose of the test and evaluation process is to assess risk. Risks come in different forms. For example, the risk of fielding a system that truly is not reliable or suitable. Anytime uncertainty or risk is involved, statistical tools play an important role in assessing that risk. This tutorial will address some of the most important statistical concepts used in test and evaluation. These include the development of confidence interval estimates for both population means (using continuous data) and population proportions (using binary data); sample size determination for estimating population means and proportions; hypothesis testing and sample size determination for two-sample tests. The participant will be enlightened by understanding the concepts of sample size, confidence intervals, and hypothesis testing and how they all fit together. Alpha and Beta risks will be discussed, as will the power and confidence of a test along with effect size. These concepts will be extended to multi-variate testing in the form of Design of Experiments (DOE). Rules of thumb will be presented for sample size (or number of replications needed) to achieve a certain confidence and power of the test. Quick tests for detecting shifts in the mean and standard deviation will also be provided. There are no mathematical or statistical prerequisites to attend, and the participant will walk away with a better appreciation for why statistical test design methodology is *so important*.

Dr. Mark J. Kiemele, *President and Co-founder, Air Academy Associates*

TRACK B DANNER WEST**13949 — MISSION THREAD ANALYTIC FRAMEWORK**

This presentation builds on the products of the Joint Test and Evaluation Methodology (JTEM) Capability Test Methodology (CTM) to execute mission-based tests and assessments. A brief historical perspective will be presented from the CTM circa 2007 to the finalization of the methodology with the last major piece resulting in the Mission Thread Analytic Framework. It builds on the mission decomposition process and allows the analyst to follow through the decomposition process to the causality of system performance to mission and task outcomes. Mission Thread Analytic Framework application for the Afghanistan Mission Network (AMN) Coalition Interoperability Assessment & Validation (CIAV) process will be discussed and will address the following: 1) agility of the process applied within 90-day assessment cycles; 2) development of objective measures at the mission, task and system levels; and 3) deployment of instrumentation and analysis tools. Finally, as the lessons learned from AMN are applied to Future Mission Network (FMN), application of the Mission Thread Analytic Framework to FMN will be explored.

Mr. Max Lorenzo, *LNO Joint/Coalition TEO&C, DISA TEO*

TRACK C ARCHER EAST**13960 — MODERN DESIGN OF EXPERIMENTS – RECENT ADVANCES**

Attendees will learn about several exciting new Design of Experiments (DOE) methods for screening factors first published in 2011. Definitive Screening designs will be presented in detail in the tutorial. These new designs for all continuous factors can - in fewer trials than classical fractional-factorial designs - not only detect main effects but also curvature in each factor. When the number of significant factors is small, a Definitive Screening design can collapse into a “one-shot” design capable of supporting a response-surface model with which a process can be optimized or fully characterized. A case study will be shown in which a 10-factor process is optimized in just 24 trials. Moreover, when more than a few factors are significant and the design can't collapse into a one shot design, the design can economically be augmented to support a response surface model in the important factors. Additionally, “alias-optimal” designs (2011) useful when not all factors are continuous – i.e. when several factors are categorical at multiple levels, as well as a class of “supersaturated” designs (2008) for selecting dominant factors will be demonstrated. Graphical comparisons between these alternative methods and traditional designs will show the new ones to be superior or at the very least, strong competitors.

Dr. Thomas A. Donnelly, *Systems Engineer, SAS Institute, Inc.*

TRACK D ARCHER WEST**13697 — SYSTEMS OF SYSTEMS INTEGRATION AND VERIFICATION STRATEGY WORKSHOP APPROACH**

Systems Integration and Verification Planning Workshops have been successfully conducted to define the overall strategy for a Systems of Systems program and define the roles and responsibilities for the teams. The purpose of these workshops is to translate individual system planning displays into a comprehensive integration and verification strategy that avoids duplication of effort and prevents gaps. The workshop focuses on who does what when and plans for “what if.” Components of the workshops have been implemented on Systems of Systems programs at Raytheon.

Dr. Beth Wilson, *Principal Engineering Fellow, Raytheon Company*

MONDAY, MARCH 12 — TUTORIALS

12:00 noon - 1:00 pm **Lunch Break (Not included in registration fees)**

1:00 pm - 2:45 pm **Session 2 Tutorials**

TRACK A CONTINUED DANNER EAST
13707 — FUNDAMENTAL STATISTICAL CONCEPTS IN TEST AND EVALUATION
Dr. Mark J. Kiemele, *President and Co-founder, Air Academy Associates*

TRACK B CONTINUED DANNER WEST
13949 — MISSION THREAD ANALYTIC FRAMEWORK
Mr. Max Lorenzo, *LNO Joint/Coalition TE&C, DISA TEO*

TRACK C CONTINUED ARCHER EAST
13960 — MODERN DESIGN OF EXPERIMENTS – RECENT ADVANCES
Dr. Thomas A. Donnelly, *Systems Engineer, SAS Institute, Inc.*

TRACK E ARCHER WEST
MMF AND THE ART OF THE TRADE STUDY: COMBAT POWER
The Missions and Means Framework (MMF) is an ideal structure for conducting trade studies. Originally conceived as a structure for conducting vulnerability/lethality analyses, MMF has been shown to have broad applicability in all aspects of the military decision-making and system acquisition process, from requirements development to Live Fire Testing. In this session, we discuss the MMF trade study process as it relates to requirements development, especially force reconstitution and optimal force mix for specific missions. In recent years, the Army's Future Combat System (FCS) program had a requirement to retain sufficient combat power at the conclusion of one mission to go on to the next mission. What, exactly, is combat power, and how much combat power is required for a particular mission? We begin with a definition of combat power, and then demonstrate how MMF not only facilitates the trade study process, but also provides traceability and justification for specific requirements.
Dr. Jim Walbert, *Chief Scientist, SURVICE Engineering Company*

2:45 pm - 3:15 pm **Afternoon Break**

3:15 pm - 4:30 pm **Session 3 Tutorials**

TRACK F DANNER EAST
13951 — BEYOND REQUIREMENT AFFORDABILITY AND FEASIBILITY - VALIDATING MISSION RELEVANCE THROUGH MMF
Testers and Evaluators must work closely with Warfighter representatives to validate the operational relevance of user requirements early in the acquisition process. This is easier said than done. It requires a shared understanding of the supported mission sets in sufficient detail to understand what essential tasks are to be performed; how well they are to be performed; why they are to be performed; and how they support accomplishment of mission end states. The Missions and Means Framework (MMF) and the associated Mission Based Test and Evaluation Framework (MBTE) offer a proven structure to specify the elements of operational mission sets using a common structure and language that facilitates mutual understanding between requirement developers and T&E professionals. Examples from the twice yearly U.S. Army Triad Network Integration Experiments (NIE), which integrated Experimentation/DT/OT in one large-scale event, will be presented. The authors will describe and demonstrate an approach to maximize early collaboration between requirement developers and the T&E community, using the Army NIE events as examples, to understand and validate operational relevance of system requirements during the development process.
Mr. Britt Bray, *Military Analyst, DRC*

TRACK G DANNER WEST
13838 — IMPLEMENTING INTEGRATED TEST AND EVALUATION PRACTICES
During the early phases of acquisition, the test community must be involved to help demonstrate the feasibility of conceptual approaches, evaluate design risks, identify design alternatives, compare and analyze tradeoffs, and assess testability of operational requirements. Developmental Test and Evaluation (DT&E) is concerned with attainment of engineering design goals and assessing system development to attain operational capabilities. Operational Test and Evaluation (OT&E) focuses on operational effectiveness, suitability, and survivability as well as assessment of mission capabilities. The iterative process of testing moves gradually from a concentration on DT&E, to increasingly comprehensive OT&E as a system undergoes design and development. Although these have historically been separate events, DT&E and OT&E should be integrated in the development of a weapon system. The USMC formed a charter to address this concept of Integrated Test and Evaluation. The mission of the charter is to teach the method for accomplishing Integrated Test and Evaluation in the USMC acquisition process. The results address T&E but also guide best practices for interactions between Material Developers, Capabilities Developers, and Testers.
Maj Mark Raffetto, USMC, *Chief of Test, Marine Corps Operational Test & Evaluation Activity*

MONDAY, MARCH 12 — TUTORIALS

TRACK H

ARCHER EAST

13936 — PLANNING VS TESTING FOR SECURITY IN T&E SOFTWARE DEVELOPMENT

This session describes the organizationally-defined testing process, techniques and tools used to consistently execute testing, document the testing results and statistically analyze the test data to identify future improvements. Topics covered include software test approaches; a comparison of the types of testing such as software testing, verification, validation and debugging; the axioms of software testing; challenges and benefits of automating software tests; addressing security requirements during development; testing for security vulnerabilities before release not after; developing test cases through the various lifecycle phases; example testing metrics; and descriptions of the statistical methods utilized to evaluate the effectiveness of software testing. The presentation addresses the models and tools used to develop the testing process assets to include the Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI®) v1.3, Air Force Smart Operations for the 21st Century (AFSO21), and the Project Management Institute (PMI) Project Management Body of Knowledge (PMBOK).

Ms. Kathy L. Reid, *Computer Scientist, 46th Range Control Squadron, Eglin AFB*

TRACK I

ARCHER WEST

RELIABILITY-INFLUENCED REQUIREMENTS FOR T&E SUCCESS

Mr. Louis Gullo, *Raytheon Company*

4:30 pm

Tutorials Conclude

5:00 pm - 6:00 pm

Welcome Reception in Display Area — Savannah Foyer

TUESDAY, MARCH 13

7:00 am - 5:00 pm

Registration Open — Savannah Foyer

7:00 am - 8:00 am

Continental Breakfast — Savannah Foyer

8:00 am - 8:15 am

Introduction and Opening Remarks — Archer & Barnwell Ballroom

- ▶ Mr. Sam Campagna, *Assistant Vice President, Operations, NDIA*
- ▶ Mr. James O'Bryon, *Chairman, NDIA Test & Evaluation Division; President, The O'Bryon Group*

8:15 am - 8:20 am

**Tribute to Our Nation and Warfighters — National Anthem
Performed by Kera O'Bryon**

8:20 am - 10:00 am

SESSION A: Conference Welcome & Keynotes

- ▶ SESSION CHAIR: Mr. James O'Bryon, *Chairman, NDIA Test & Evaluation Division; President, The O'Bryon Group*

8:20 am - 9:00 am

CONFERENCE KEYNOTE ADDRESS

- ▶ Honorable J. Michael Gilmore, *Director, Operational Test and Evaluation, OSD*

9:00 am - 9:30 am

DT&E PROGRESS AND ISSUES

- ▶ Mr. Edward Greer, *Deputy Assistant Secretary of Defense, Developmental Test and Evaluation, Director, Test Resource Management Center*

9:30 am - 10:00 am

NDIA CURRENT ISSUES

- ▶ Lt Gen Larry Farrell, USAF (Ret), *President & CEO, NDIA*

10:00 am - 10:30 am

Morning Break in Display Area — Savannah Foyer

TUESDAY, MARCH 13

10:30 am - 12:00 noon **SESSION B: Service OTAs Roundtable: T&E of Interoperability and Systems-of-Systems Test Design and Execution**

- ▶ PANEL CHAIR: RADM David Crocker, USN (Ret), *Booz Allen Hamilton*
- ▶ PANELISTS:
 - MG Genaro Dellarocco, USA, *Commander, U.S. Army Test and Evaluation Command*
 - RADM David Dunaway, USN, *Commander, Operational Test & Evaluation Force*
 - Maj Gen David Eichhorn, USAF, *Commander, Air Force Operational Test & Evaluation Center*
 - Col A.J. Pasagian, USMC, *Director, Marine Corps Operational Test and Evaluation Activity*
 - COL Joe Puett, USA, *Commander, Joint Interoperability Test Command*

12:00 noon - 1:45 pm **Walter W. Hollis Awards Luncheon — Calibogue Ballroom:**



PRESENTATION FOR OUTSTANDING LIFETIME ACHIEVEMENT IN DEFENSE TEST AND EVALUATION

- ▶ Mr. Brian Simmons, *Technical Director, ATEC*

Brian's Army career began 32 years ago in the Army Ballistic Research Labs. He then moved to AMSAA as an evaluator for infantry anti-armor weapons. Recognizing his skills as an analyst, engineer and manager, he was soon appointed Chief, Test Business Operations for Army TECOM. He also served a brief tour in the Pentagon in HQ Army Secretariat as Deputy Director, Plans, Programs and Resources. He has also served as Deputy to the Commander/ Technical Director, Army Developmental Test Command and Director, Army Evaluation Center. As a member of the Senior Executive Service since 1998, Brian was appointed as Tech Director, Army Test and Evaluation Command (ATEC) nearly 2 years ago, overseeing the execution of all ATEC test plans and reports as well as the command's evaluation strategy and analysis. He's also responsible for integrating their instrumentation, policy, M&S and continuous improvement projects, and has directed the T&E for over 400 weapons programs with a workforce of 9,000 and budget of \$2B. He completed his undergrad work at University of Maryland, received an MS from Johns Hopkins and a Harvard Executive Fellowship, graduated from the Army War College and is a certified member of the Army Acquisition Corps. He is also the recipient of two Presidential citations for his outstanding achievements.

Luncheon Guest Speaker



"BRADLEY TESTING: LESSONS LEARNED?"

- ▶ Mr. Ray Pollard, *Consultant, former Test Director, Chief Engineer, U.S. Army Test and Evaluation Command*

The Bradley Fighting Vehicle's development was one that captured the attention of the nation as it played out in congressional hearings and became the theme of a book by Col James Burton, entitled "The Pentagon Wars." Burton's book later became an HBO movie. Mr. Ray Pollard was the Army's point man on the Bradley during this chaotic time and will share his personal thoughts about what we can learn from this experience. Mr. Pollard is a West Point graduate, with an MS from Georgia Tech and a JD from the University of Maryland School of Law.

TUESDAY, MARCH 13

1:45 pm - 2:45 pm

SESSION C: Test & Evaluation of System of Systems

▶ SESSION CHAIR: Dr. James Streilein, *DDOT&E, OSD*

1:45 pm - 2:15 pm

DATA TALKS

▶ Maj Gen David Eichhorn, USAF, *Commander, Air Force Operational Test & Evaluation Center*

2:15 pm - 2:45 pm

13978 — TEST AS WE FIGHT

▶ Mr. Dennis P. O'Donoghue, *Vice President, Test & Evaluation, The Boeing Company*

2:45 pm - 3:15 pm

Afternoon Break in Display Area

| | ARCHER EAST SESSION D: Improvement in T&E Instrumentation | ARCHER WEST SESSION E: Improving the Requirements Review Process | DANNER EAST SESSION F: T&E Within the Agile Acquisition Framework | DANNER WEST SESSION G: Test & Evaluation of Autonomous Systems |
|-----------------------|--|--|---|---|
| SESSION CHAIRS | Mr. Dick Dickson, <i>TYBRIN</i> | Dr. Paul Deitz, <i>AMSAA</i> | Dr. Suzanne Beers, <i>MITRE</i> | Mr. Tom Wissink, <i>Lockheed Martin</i> |
| 3:15 pm | 13930 — LEVERAGING CELLULAR TECHNOLOGY FOR RANGE CONTROL Mr. Stan Pitchford, <i>USAF-46th Range Control Squadron</i> | 13742 — DOT&E INITIATIVES FROM THE MIDDLE Mr. Darren Jolley, <i>U.S. Army Dugway Proving Ground</i> | SYSTEM ASSESSMENT AND VALIDATION FOR EMERGENCY RESPONDERS (SAVER) PROGRAM Mr. Gary Carter, <i>Department of Homeland Security, Science & Technology</i> | 13952 — V&V FRAMEWORK FOR AUTONOMOUS VEHICLE TESTING Mr. Chad Hawthorne, <i>Johns Hopkins University - Applied Physics Laboratory</i> |
| 3:40 pm | 13924 — ARDS POD SERVICE LIFE EXTENSION: SUSTAINMENT OF A CRITICAL TEST RESOURCE Mr. Wayne T. Hostilo, <i>USAF 46th Test Wing</i> | 13686 — SOLDIER-CENTERED ANALYSIS FROM REQUIREMENTS TO TEST & EVALUATION Ms. Diane K. Mitchell, <i>U.S. Army Research Laboratory</i> | 13956 — AGILE DEVELOPMENT AND ASSESSMENT PRACTICES: EXAMPLES FROM JOINT COMMAND AND CONTROL Mr. Brian Eleazer, <i>ATI-SCRA</i> | |
| 4:05 pm | 13927 — ASE TEST EQUIPMENT DEVELOPMENT REQUIREMENTS FOR T&E Mr. Jason Grimes, <i>U.S. Army, 160th SOAR(A)</i> | 13867 — PERSPECTIVES ON THE ECONOMICS OF REQUIREMENTS OPTIMIZATION Mr. Pete DuPré, <i>Borland/ Micro Focus</i> | 13801 — JOINT INTEROPERABILITY TEST CERTIFICATION: EVOLVING THE NET READY-KEY PERFORMANCE PARAMETER (NR-KPP) AND PROVISIONING INFRASTRUCTURE TO SUPPORT DEPARTMENT OF DEFENSE AGILE ACQUISITION REFORM Ms. Danielle Mackenzie, <i>Joint Interoperability Test Command</i> | 13782 — AUTONOMOUS SYSTEMS CHALLENGES TO T&E Mr. Vincent P. Roske Jr., <i>Institute for Defense Analyses</i> |

TUESDAY, MARCH 13

| | ARCHER EAST SESSION D (CONTINUED): Improvement in T&E Instrumentation | ARCHER WEST SESSION E (CONTINUED): Improving the Requirements Review Process | DANNER EAST SESSION H: Getting the Most Bang for the Buck Utilizing Design of Experiments (DoE) | DANNER WEST SESSION I: T&E In a Joint / Coalition Environment |
|---|--|---|--|--|
| SESSION CHAIRS | Mr. Dick Dickson, <i>TYBRIN</i> | Mr. Jim Ruma, <i>General Dynamics Land Systems (Ret)</i> | Dr. Paul Deitz, <i>U.S. Army Materiel Systems Analysis Activity</i> | Mr. Martin Woznica, <i>Raytheon Company</i> |
| 4:30 pm | 13993 — UNTETHERED TEST CAPABILITY IMPROVING AIRBORNE TEST EFFICIENCY Ms. Bethany Ward, <i>Jacobs Technology, 46th Test Wing</i> | 13678 — REQUIREMENTS VERIFICATION TRACKING BEST PRACTICE Mr. Robert S. Hunter, <i>Alliant Techsystems</i> | 13959 — EFFICIENT TEST DESIGN USING BOTH DESIGN OF EXPERIMENTS METHODS AND MODELING & SIMULATION Dr. Thomas A. Donnelly, <i>SAS Institute, Inc.</i> | 13856 — THE TEST AND TRAINING ENABLING ARCHITECTURE (TENA) - ENABLING INTEROPERABILITY AMONG RANGES, FACILITIES, AND SIMULATIONS Mr. Gene Hudgins, <i>TENA / JMETC</i> |
| 4:55 pm | 13694 — VALIDATING THE CALIBRATION OF A HARDWARE-IN-THE-LOOP FACILITY USING DYNAMIC AND MONTE CARLO TECHNIQUES Mr. Chester F. Boncek, <i>Jr., Raytheon Company</i> | 13933 — TACTICS FOR INTEGRATION OF T&E IN EARLY REQUIREMENTS DEVELOPMENT Mr. Joe Manas, <i>Raytheon Missile Systems</i> | 13958 — TEST OPTIMIZATION UTILIZING DESIGN OF EXPERIMENTS Ms. Tonja Rogers, <i>Raytheon Company</i> | 13947 — JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC): IMPROVING DISTRIBUTED TEST CAPABILITIES Mr. Chip Ferguson, <i>Joint Mission Environment Test Capability</i> |
| 5:20 pm | 13950 — TOWED AIRBORNE PLUME SIMULATOR: A TEST ASSET FOR OPEN AIR TESTING OF AIRCRAFT INFRARED COUNTERMEASURE SYSTEMS IN REALISTIC OPERATIONAL ENVIRONMENTS Mr. Rick Taylor, <i>SAIC</i> | 13941 — JOINT LIGHT TACTICAL VEHICLE AUTOMOTIVE REQUIREMENTS DEVELOPMENT Dr. Gregory Schultz, <i>U.S. Army Aberdeen Test Center</i> | 13714 — MERGING OPERATIONAL REALISM WITH DOE METHODS IN OPERATIONAL TESTING Ms. Nancy H. Dunn, <i>U.S. Army Evaluation Center</i> | 13802 — COALITION INTEROPERABILITY ASSURANCE & VALIDATION AND COALITION TEST & EVALUATION ENVIRONMENT: A MODEL FOR COALITION INTEROPERABILITY IN A REALISTIC OPERATIONAL ENVIRONMENT Mr. Jeff Phipps & Mr. Todd Rissinger, <i>Joint Interoperability Test Command</i> |
| 5:45 pm - 7:00 pm Networking Reception in Display Area | | | | |

WEDNESDAY, MARCH 14

7:00 am - 5:00 pm

Registration Open — Savannah Foyer

7:00 am - 8:00 am

Continental Breakfast — Savannah Foyer

8:00 am - 8:10 am

Introduction and Opening Remarks — Archer & Barnwell Ballroom

- ▶ Mr. Sam Campagna, *Assistant Vice President, Operations, NDIA*

8:10 am - 10:00 am

SESSION J: Test & Evaluation's Role in System Requirements

- ▶ SESSION CHAIR: Dr. Lowell Tonnessen, *IDA*

8:10 am - 8:45 am

Guest Speaker

- ▶ Mr. Robert Soule, *Director, Operational Effectiveness Directorate, IDA*

8:45 am - 10:00 am

T&E Executive Panel: The Proper Role of T&E and the Testing Community in Defense Systems Requirements

- ▶ PANEL CHAIR: Dr. Catherine Warner, *Science Advisor, DOT&E, OSD*

▶ PANELISTS:

Ms. Kathleen Conley, *Director, Land Forces Cost Assessment and Program Evaluation Department of Defense*

RADM Arch Macy, *USN (Ret)*

Ms. Amy Markowich, *Deputy, Department of the Navy Test and Evaluation, Executive Office of the Assistant Secretary of the Navy, Research, Development and Acquisition*

RADM William McCarthy, *USN (Ret), OPTEVFOR*

10:00 am - 10:30 am

Morning Break in Display Area — Savannah Foyer

10:30 am - 11:30 am

SESSION K: Enhancing Test & Evaluation Productivity

- ▶ PANEL CHAIR: Mr. Wink Yelverton, *SURVICE Engineering*

▶ PANELISTS:

DT&E: Mr. Bob Carter, *Executive Director, White Sands Missile Range*

LFT&E: Dr. Catherine Warner, *Science Advisor, DOT&E*

OT&E: Dr. James Wade, *Vice President, Mission Assurance, Raytheon Company*

FOT&E: Mr. Robert Wojciechowski, *ATEC*

WEDNESDAY, MARCH 14

11:30 am - 1:00 pm Tester of the Year Awards Luncheon — Calibogue Ballroom

This awards event is a highlight of our annual conference since it provides the opportunity to recognize outstanding achievement in Test and Evaluation by members of our Armed Forces, DoD civilians, and DoD contractors. Furthermore, what makes these awards particularly noteworthy is that the selections are made by the organizations of those being recognized. Congratulations to all who are receiving awards for their 2011 accomplishments.

MAJ Altwan Whitfield, USA
U.S. Army
Military Tester of the Year

Mr. Michael Nott
U.S. Army
Civilian Tester of the Year

Mr. Kenneth Van Allen
U.S. Army
Contractor Tester of the Year

LTC Mark J. Gruber, USA
OSD
Military Tester of the Year

Mr. Frederick Marsh
OSD
Civilian Tester of the Year

Mr. Robert J. Mattes
OSD
Contractor Tester of the Year

Maj Jason R. Goldberg, USAF
U.S. Air Force
Military Tester of the Year

Mr. David C. Fedors
U.S. Air Force
Civilian Tester of the Year

Mr. Roger D. Bridges
U.S. Air Force
Contractor Tester of the Year

Maj Richard M. Rusnok, USMC
U.S. Marine Corps
Military Tester of the Year

Mr. Bryan M. Racine
U.S. Marine Corps
Civilian Tester of the Year

Mr. Steven D. Hope
U.S. Marine Corps
Contractor Tester of the Year

LCDR Daniel J. Radocaj, USN
U.S. Navy
Military Tester of the Year

Ms. Amber Huffman
U.S. Navy
Civilian Tester of the Year

Mr. William F. Smith
U.S. Navy
Contractor Tester of the Year

WEDNESDAY, MARCH 14

1:00 pm - 2:30 pm

SESSION L: Systems Engineering's Impact on Test & Evaluation

▶ SESSION CHAIR: Mr. Britt Bray, *DRC Corporation*

1:00 pm - 2:00 pm

DT&E and Systems Engineering Panel: Changing the DNA of Test & Evaluation

▶ PANEL CHAIR: Mr. Robert Rassa, *Chairman Emeritus, NDIA Systems Engineering Division; Director, Engineering Programs, Raytheon Company*

▶ PANELISTS:

Ms. Katrina McFarland, *President, Defense Acquisition University*

Mr. Steve Scukanec, *Senior Engineer, Northrop Grumman Aerospace*

Mr. Brian Simmons, *Technical Director, ATEC*

Dr. Beth Wilson, *Principal Engineering Fellow, Raytheon Company*

2:00 pm - 2:30 pm

APPLICATION OF THE MISSIONS AND MEANS FRAMEWORK (MMF) TO COMBAT SYSTEM REQUIREMENTS, DEVELOPMENT, AND REFINEMENT

▶ Dr. Paul Deitz, *U.S. Army Materiel Systems Analysis Activity*

2:30 pm - 3:00 pm

Afternoon Break in Display Area — Savannah Foyer

| | ARCHER EAST SESSION M: The Role of Systems Engineering in the T&E Process | ARCHER WEST SESSION N: Science-Based Testing: the Impact on T&E | DANNER EAST SESSION O: Systems Integration & Systems of Systems | DANNER WEST SESSION P: Improving the T&E Process |
|----------------|---|--|---|--|
| SESSION CHAIRS | Dr. James N. Walbert, <i>SURVICE Engineering</i> | Mr. Robert Wojciechowski, <i>ATEC</i> | Mr. Martin Woznica, <i>Raytheon Company</i> | Dr. Lowell Tonnessen, <i>IDA</i> |
| 3:00 pm | 13932 — SYSTEMS ENGINEERING FOR TEST: PROVIDING THE RIGHT TESTING AT THE RIGHT TIME Mrs. Louisa J. Guise, <i>Raytheon Company</i> | 13755 — DEVELOPING SCIENCE-BASED TESTING: CHARACTERIZING THE PHYSICAL ENVIRONMENT WITH ENOUGH DETAIL TO SUPPORT TEST PROCEDURES Dr. Eric V. McDonald, <i>Desert Research Institute</i> | 13953 — THE ROLE OF SYSTEMS INTEGRATION IN EFFECTIVE TEST & EVALUATION Mr. Robert Koczat, <i>The Spectrum Group</i> | 13942 — THE VALUE OF THE TEST ARCHITECT Mr. James A. Brewer Jr., <i>Raytheon Missile Systems</i> |
| 3:25 pm | 13954 — USING MODEL-BASED SYSTEMS ENGINEERING TO IMPROVE REQUIREMENTS COMMUNICATION AND SHARED UNDERSTANDING Mr. Frank J. Salvatore, <i>Dynamics Research Corporation</i> | 13917 — PRACTICAL ASPECTS FOR DESIGNING STATISTICALLY OPTIMAL EXPERIMENTS Mr. Mark J. Anderson, <i>Stat-Ease, Inc.</i> | 13696 — BEST PRACTICES MODEL FOR TEST AND EVALUATION OF SYSTEMS OF SYSTEMS Dr. Beth Wilson, <i>Raytheon Company</i> | 13920 — U.S. ARMY TEST AND EVALUATION COMMAND PROCESS FOR THE IDENTIFICATION OF T&E PROGRAM EFFICIENCIES Mr. Charles Mellina, <i>U.S. Army Test & Evaluation Command</i> |

WEDNESDAY, MARCH 14

| | ARCHER EAST SESSION Q: Achieving Realistic Operational Testing | ARCHER WEST SESSION R: Improving Systems Reliability and Lowering Life Cycle Costs | DANNER EAST SESSION S: Improvements in the Information Technology Component of T&E | DANNER WEST SESSION T: WHITE PAPER DRAFTING SESSION |
|---|---|--|---|---|
| SESSION CHAIRS | Mr. Robert Wojciechowski, <i>ATEC</i> | Dr. Mark Kiemele, <i>Air Academy Associates</i> | Mr. Jack Sheehan, <i>ORSA Corporation</i> | Mr. Martin Woznica, <i>Raytheon Company</i> |
| 3:50 pm | 13843 — EVALUATING THE “PREVENTION OF FATALITY” FORCE PROTECTION REQUIREMENT Mr. Raffaele Croce, <i>Marine Corps Operational Test and Evaluation Activity</i> | 13836 — IDENTIFYING RELIABILITY, AVAILABILITY AND MAINTAINABILITY REQUIREMENTS FOR NETWORK-CENTRIC SYSTEMS Dr. Jeanne Hartzell, <i>Marine Corps Operational Test and Evaluation Activity</i> | SUGGESTIONS FOR IMPROVING IT & BUSINESS SYSTEM TESTING Dr. Eric Loeb, <i>Special Assistant Director, Operational Test & Evaluation</i> | This is a panel leading to the preparation of a White Paper documenting issues and recommendations made over the entire 4 days of the conference. This document will then be made available to those in DoD Leadership who may review and act upon them. All conference attendees are encouraged to attend this informal session and provide inputs to the White Paper. They may be presented orally or in written form. |
| 4:15 pm | 13914 — ASSESSMENT OF LARGE ENGINE VULNERABILITY TO MANPADS Mr. Gregory J. Czarnecki, <i>USAF 46th Test Group, WPAFB</i> | 13739 — OPTIMIZING TEST CONFIDENCE BASED ON LIFE-CYCLE COST Mr. Scott Bindel, <i>U.S. Army Test and Evaluation Command</i> | | |
| 4:40 pm | 13940 — EFFECT OF VARIOUS PREPARATION METHODS ON LIVE-FIRE FUEL CHARACTERISTICS Mr. Andrew Drysdale, <i>U.S. Army Research Laboratory</i> | 13957 — SETTING PROGRAMS UP FOR RELIABILITY EVALUATION SUCCESS: A SYSTEMS ENGINEERING APPROACH Mr. Grant R. Schmieder, <i>High Performance Technologies Group, DRC Company</i> | 13682 — DOD ENTERPRISE T&E NETWORK: DISN TEST AND EVALUATION NETWORK Mr. Tracey Bisbee, <i>DISA</i> | |
| 5:05 pm | | 13931 — LATEST RELIABILITY GROWTH POLICIES, PRACTICES, AND THEORIES FOR IMPROVED EXECUTION Mr. Louis J. Gullo, <i>Raytheon Company</i> | 13833 — CYBER DEFENSE CAPABILITIES IN JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEMS DOCUMENTS: HOW THINKING OPERATIONALLY CAN IMPROVE TEST AND EVALUATION OF DOD NETWORKS AND WEAPON SYSTEMS Mr. Paul C. Johnson, <i>Marine Corps Operational Test & Evaluation Activity</i> | |
| 5:30 pm Wednesday Sessions Adjourn | | | | |

THURSDAY, MARCH 15

7:00 am - 12:00 noon Registration Open — Savannah Foyer

7:00 am - 8:00 am Continental Breakfast — Savannah Foyer

8:00 am - 9:50 am **SESSION U: Improving Test & Evaluation**

▶ SESSION CHAIR: Dr. Suzanne Beers, *MITRE Corporation*

8:00 am - 8:20 am **13892 — NDIA INDUSTRIAL COMMITTEE ON TEST AND EVALUATION (ICOTE) PROGRESS REPORT**

▶ Mr. Tom Wissink, *ICOTE Chair, NDIA; Director of Integration, T&E, Lockheed Martin*

8:20 am - 8:50 am **13684 — THE SCIENCE OF TEST AT THE U.S. ARMY YUMA PROVING GROUND**

▶ Mr. Christopher J. Johnson, *U.S. Army Yuma Proving Ground*

8:50 am - 9:50 am **Panel: Physics-Based Modeling & Simulation in Support of T&E Requirement**

▶ PANEL CHAIR: Dr. Douglass Post, *Chief Scientist, High Performance Computing Modernization Program*

▶ PANELISTS:

Dr. Ed Kraft, *Chief Technologist, Arnold Engineering Center*

Mr. Eric Rolfe, *Raytheon Company*

Dr. James N. Walbert, *SURVICE Engineering*

9:50 am - 10:20 am **13943 — DOD and WSARA — Implementation Progress and Challenges**

▶ Ms. Cheryl Andrew, *Assistant Director, U.S. GAO*

10:20 am - 10:50 am **Morning Break in Display Area**

10:50 am - 12:00 noon **SESSION V: Conference Synopsis Forum**

▶ SESSION CHAIR: Mr. James O'Bryon, *Chairman, NDIA Test & Evaluation Division; President, The O'Bryon Group*

10:50 am - 11:20 am **13944 — CONTINUOUS METRICS FOR EFFICIENT AND EFFECTIVE TESTING**

▶ Dr. Laura Freeman, *Institute for Defense Analyses*

11:20 am - 12:00 noon **Conference Synthesis Panel: The genesis of a White Paper documenting and assimilating issues and recommendations made over the entire conference.**

▶ SESSION CHAIR: Mr. Jim Ruma, *Vice President, Engineering, General Dynamics Land Systems (Ret)*

▶ PANELISTS:

Dr. Suzanne Beers, *MITRE Corporation*

Ms. Melissa Fitzgerald, *Director, Integration & Test, Raytheon Company*

Dr. Douglass Post, *Chief Scientist, High Performance Computing Modernization Program*

Dr. James Streilein, *Deputy Director, Net-Centric, Space and Missile Defense Systems, Director, Operational Test and Evaluation, OSD*

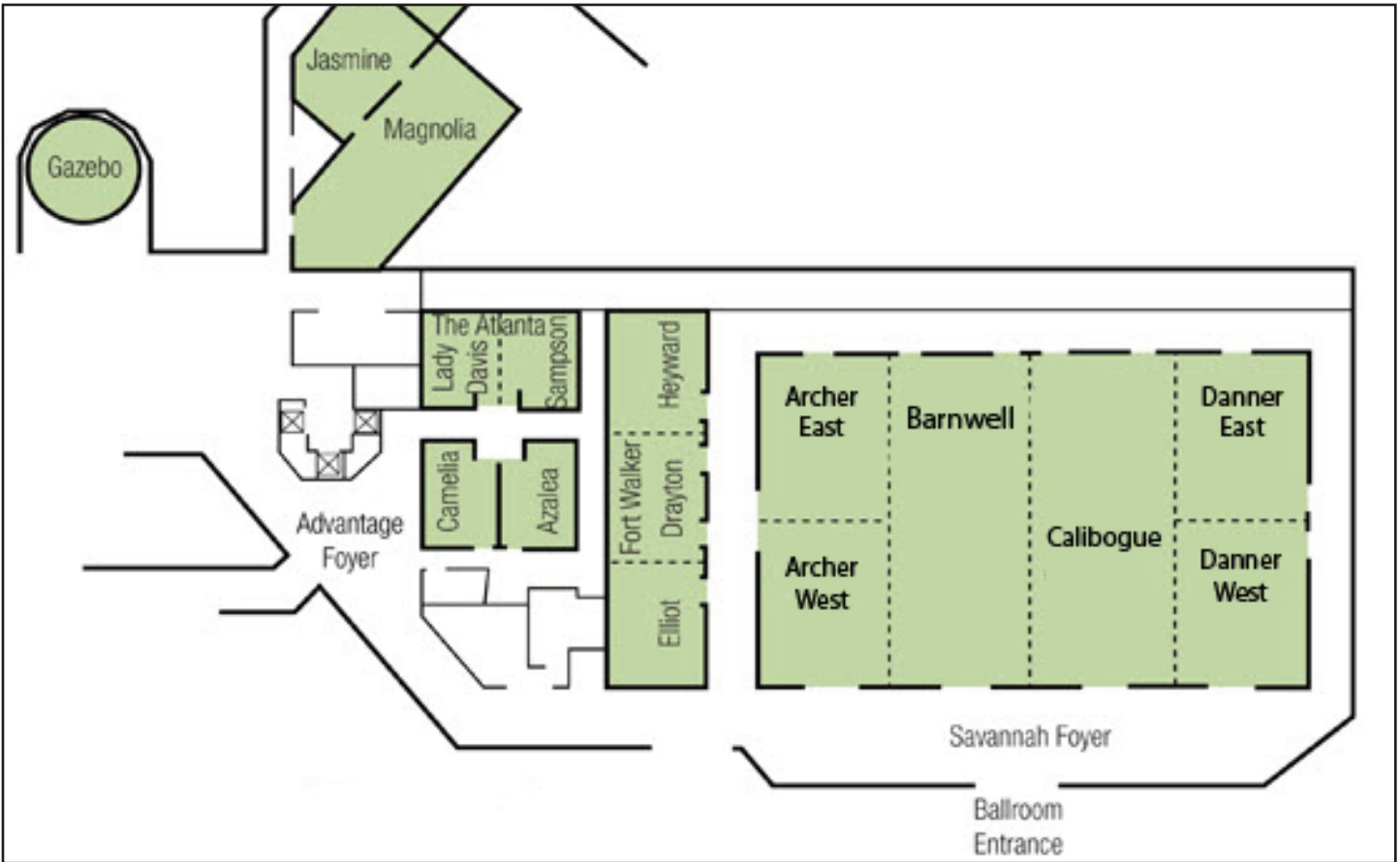
Dr. Lowell Tonnessen, *IDA*

Dr. Catherine Warner, *Science Advisor, DOT&E*

12:00 noon - 12:05 pm **Closing Remarks**

▶ Mr. James O'Bryon, *Chairman, NDIA Test & Evaluation Division; President, The O'Bryon Group*

CONFERENCE MAP



DISPLAYERS

- ▶ 746th Test Squadron
- ▶ Air Academy Associates
- ▶ Analytical Graphics, Inc.
- ▶ Arnold Engineering Development Center
- ▶ CALCULEX, Inc.
- ▶ General Dynamics Land Systems
- ▶ Micro Focus
- ▶ National Technical Systems - NTS
- ▶ SAS Institute Inc.
- ▶ Scientific Research Corporation
- ▶ Stat-Ease, Inc.
- ▶ SURVICE Engineering
- ▶ TENA/JMETC
- ▶ Tybrin Corporation
- ▶ U.S. Army Dugway Proving Ground
- ▶ U.S. Army Yuma Proving Ground
- ▶ Wyle

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CONFERENCE PROCEEDINGS

Conference proceedings will be posted within 2 weeks of the conclusion of the conference.

ATTENDEE ROSTER

Please visit the event website www.ndia.org/meetings/2910 and click on the "Attendee Information" or "Agenda" tabs for an up-to-date roster. The final attendee roster will be emailed to all attendees with the proceedings link.

CONFERENCE SURVEY

A conference survey will be emailed to all attendees to rate the quality of the conference. Responses may be used for future marketing materials!

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29th Annual National Test & Evaluation Conference

February 25-28, 2013
Charlotte, NC

ADDITIONAL AUTHORS

| Abstract # | Title | Authors |
|------------|---|--|
| 13951 | Beyond Requirement Affordability and Feasibility - Validating Mission Relevance through MMF | Mr. Jack Sheehan |
| 13924 | ARDS Pod Service Life Extension- Sustainment of a Critical Test Resource | Mr. John P. Murchison |
| 13955 | Systems Engineering Methodologies to Improve Test and Evaluation of Autonomous Unmanned Ground Vehicles | Dr. Timothy Eveleigh, Dr. Thomas Holzer, Dr. Paul Young |
| 13782 | Autonomous Systems Challenges to T&E | Dr. Ira Kohlberg, Mr. Raymond Wagner |
| 13993 | Un-tethered Test Capability Improving Airborne Test Efficiency | Mr. Kenneth Berge |
| 13959 | Efficient Test Design Using Both Design of Experiments (DOE) Methods and Modeling & Simulation (M&S) | Dr. Marshall G. Millett |
| 13856 | Tactics for Integration of T&E in Early Requirements Development | Ms. Tay Fitzgerald |
| 13958 | Test Optimization Utilizing Design of Experiments | Dr. Peter Kraus |
| 13947 | Joint Mission Environment Test Capability (JMETC): Improving Distributed Test Capabilities | Mr. Chip Ferguson |
| 13950 | Towed Airborne Plume Simulator - a Test Asset for Open Air Testing of Aircraft Infrared Countermeasure Systems in Realistic Operational Environments | Mr. John Hubbard, Ms. Kathy Dietz, Mr. Neal Redmond |
| 13941 | Joint Light Tactical Vehicle Automotive Requirements Development | Ms. Camille Robbins, Mr. Fredrick Scriba |
| 13714 | Merging Operational Realism with DOE Methods in Operational Testing | Mr. Jonathan Fowler |
| 13802 | Coalition Interoperability Assurance & Validation (CIAV) and Coalition Test & Evaluation Environment (CTE2) - A Model for Coalition Interoperability in a Realistic Operational Environment | Mr. Todd Rissinger |
| 13932 | Systems Engineering for Test: Providing the Right Testing at the Right Time | Mr. Joseph A. Manas |
| 13755 | Developing Science-Based Testing - Characterizing the Physical Environment with Enough Detail to Support Test Procedures | Ms. Linda Spears, COL Steven D. Fleming, Mr. Steven N. Bacon |
| 13942 | The Value of the Test Architect | Mr. Joseph A. Manas, Mrs. Louisa J. Guise, Mr. Gerald T. Emmert |
| 13917 | Practical Aspects for Designing Statistically Optimal Experiments | Mr. Patrick J. Whitcomb |
| 13696 | Best Practices Model for Test and Evaluation of Systems of Systems | Dr. Judith Dahmann |
| 13920 | U.S. Army Test and Evaluation Command Process for the Identification of T&E Program Efficiencies | Ms. Karen D. Mannix |
| 13914 | Assessment of Large Engine Vulnerability to MANPADS | Mr. Joe Manchor, Dr. Sunil Sinha, Dr. Gautam Shah, Mr. John Haas |
| 13940 | Effect of Various Preparation Methods on Live-Fire Fuel Characteristics | Mr. David Lowry, Mr. Timothy Grose |
| 13957 | Setting Programs Up for Reliability Evaluation Success: A Systems Engineering Approach | Mr. Alan Fu |
| 13679 | System Design Architecture for Muti-Munition All Up Round Test Systems | Mr. Hugh Smith |
| 13684 | The Science of Test at the U.S. Army Yuma Proving Ground | Mr. Julio Dominguez, Mr. Christopher Johnson, Ms. Bernice Gonzalez |
| 13943 | DOD and WSARA - Implementation Progress and Challenges | Mr. Michael J. Sullivan |
| 13944 | Continuous Metrics for Efficient and Effective Testing | Dr. Bram Lillard |

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