

DMSO NEWS

Volume 5 Number 1

Spring 2000

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Visit the DMSO @ booth 314,
at ITEC Europe in The
Hague, April 11-13.

DMSO leadership changes, Crain named new director

WASHINGTON -- Army Colonel Wm. Forrest Crain became the fifth director of the Defense Modeling and Simulation Office on March 1. He assumed leadership of the DMSO from outgoing Director, Air Force Colonel Ken "Crash" Konwin. Crain has served since May as the deputy director. Navy Captain (Select) David C. Johnson, chief of the DMSO Operations Division since July 1, replaced Crain as deputy director.

Dr. Delores Etter, Deputy Director for Defense Research and Engineering, announced the changes in DMSO leadership in a memo dated Feb. 18.

Konwin served at the DMSO for the past three years -- first, as deputy director beginning in 1997 and as director since 1998. He was selected to serve as Special Advisor to Dr. Vitalij Garber, Director of Interoperability, in the Office of the Under Secretary of Defense for Acquisition, Logistics and Technology.

According to Etter, he will "advise (Garber) on the ... critical role (of modeling and simulation) in achieving effective joint interoperability of defense communication and weapons systems across all Services."

Dr. Judith Dahmann, DMSO Chief Scientist since August 1995, announced March 16 that she would return to MITRE Corporation on April 1 with a follow-on assignment to support Dr. Garber as well, leveraging the HLA and the lessons learned in its development to address the interoperability opportunities and challenges facing the Defense Department.

Crain, who graduated from the U.S. Military Academy in 1975 with a Bachelor of Science, earned a Master of Science degree from the University of Southern California in 1979 and is currently pursuing his doctorate in Information Technology from George Mason Uni-

See DMSO LEADER CHANGES, p. 20

88 nominated for 1999 M&S awards

By Larry Alexander
DMSO M&S Awards Project Lead

Boards have been reviewing 88 nominees to select eight winners to receive the 1999 Defense Modeling and Simulation Office (DMSO) Modeling and Simulation (M&S) Awards at the ninth annual DMSO Industry Days in May.

The awards program, now in its second year, was initiated in 1998 by the DMSO to recognize both government and non-government achievement in support of Department of Defense (DoD) M&S objectives. Eight individuals or teams -- one government and one non-government -- are selected in each of four categories. The first three categories consist of the M&S functional areas -- training, analysis and acquisition. The fourth category, a cross-functional area, considers those broader endeavors that impact all aspects of the overall DoD M&S effort.

DMSO Industry Days will showcase DoD M&S

The ninth annual Defense Modeling and Simulation Office (DMSO) Industry Days, will be held May 23-25, at the Sheraton Premiere at Tysons Corner in Vienna, Va.

The program will present the latest modeling and simulation (M&S) trends and developments in the DoD and industry to government/military and industry executives, strategic planners, program managers and senior technical managers.

The event is sponsored by the DMSO, the National Training Systems Association (NTSA), and the M&S Industry Steering Group of the National Defense Industrial Association.

Presentations, M&S Award winners' program descriptions and other conference information will be posted on the DMSO Web site at <http://www.dmsomil/> as they become available beginning on May 23.

See M&S AWARDS, p. 20



Director's Corner

By Colonel Wm. Forrest Crain, U.S. Army

"DMSO - A new vector"

I am both honored and humbled at being given the opportunity to serve as the Director of the Defense Modeling and Simulation Office. I was fortunate in having the mentorship of *Colonel Crash Konwin* over the past nine months and I sincerely appreciate his patience and support. Crash has been selected to assume the position of Special Assistant to Dr. Vitalij Garber, DoD's new Director of Interoperability in the Office of the Under Secretary of Defense (Acquisition, Technology & Logistics).

In addition to Crash's departure, effective April 1, *Dr. Judith Dahmann* will also be departing DMSO to join Dr. Garber's all-star team. Dr. Dahmann has served superbly as DMSO's Chief Scientist since July 1995, and has been *the critical force* in the development of

"... the DMSO has been asked reexamine its role. Given the maturity of DoD M&S today and the speed at which technology is changing, we have to be flexible - capable and willing to shift our focus to fit the needs of the M&S community to ultimately serve the Warfighter."

the High level Architecture (HLA) for the Department. If we had to lose two of our key teammates, one couldn't have asked for a better position for them than with the DoD Interoperability office. I am confident that both Crash and Judith will continue to make real and significant contributions to the M&S community as key members of Dr. Garber's interoperability team. Navy *Captain (Select) Dave Johnson*, previously Operations Division chief, is our new Deputy Director. He'll continue to wear two hats until we can fill the Operations Division billet. Please see the article on page 1 for details about the changes.

See *DIRECTOR'S CORNER*, p. 3

DMSO NEWS

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Director, Defense Modeling and Simulation Office

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Chief Scientist

Dr. Judith Dahmann (through March 31)

Chief, Operations Division

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Chief, Technology Applications Division

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Parting comments from the ...

Director's Corner

By Colonel Crash Konwin, U.S. Air Force

"Sometimes the best view in an arena is from the center court - but always watch out for the lions!!!"

It seems like only yesterday that I started down this piece of the road. I have always identified with the Theodore Roosevelt quote referred to as "In the Arena" - my comments this time will be from the perspective of one privileged to have had a center court seat. It has been almost three years in the DMSO -- first as Deputy Director and then as Director -- there are recollections of some great and satisfying personal and organizational professional accomplishments, but so much left to shape and achieve for my successor, Army Col. Wm. Forrest Crain -- "DMSO 01 Flight - Lead change - now!!!"

Forrest -- thanks and all the best to you as new Director and Team DMSO overall during your time in the lead!!! To Navy Capt. (Select) Dave Johnson, fleeting up as DMSO Deputy Director, I encourage you to provide Forrest the same sort of professional support and additional views and perspective as Forrest did for me. Congratulations to both of you in your new roles and responsibilities. For success, you will have to rely (as I did) on the contributions of the key personnel: Gary Yerace (Chief of Staff), Waverly Debraux (Business Finance Manager), Marine Corps Lt. Col. Mac McKeon (Tech Applications Division), Juan Perez (Integrated Natural Environment Program Manager), Philomena Zimmerman (HLA Program Manager), and Dave Cantrell (SETA Support Manager), as well as all the project leads and mission support personnel I would have preferred to mention by name, but in the interest of brevity, will not -- thanks one and all.

As Director, you are privileged to work with and among some of the best modeling and simulation (M&S) technologists and application specialists -- not only within the DMSO, but also "in the field." I am not ashamed to admit a bias for working with "world class" people. Professionally and personally, I have relied on Dr. Judith Dahmann, DMSO

Chief Scientist, to challenge and sharpen my thinking and help shape an informed, balanced and practical M&S technical development program and technology transition strategy for DoD with key community members. Judith's professional contributions were recognized by the broader government community in 1999 when she won a prestigious Arthur S. Flemming Award. Judith -- thanks for the advice to me and the tireless technical leadership you have provided the community.

During our best moments as a community, we showed that professionals in government and industry -- jointly or in conjunction with coalition members -- can overcome significant cultural barriers in the pursuit of improved support for warfighters via M&S technology enablers. I will fondly look back upon the successful, formative projects of M&S collaboration using the High Level Architecture (HLA) and other emerging DMSO-supported technologies like the Synthetic Environment Data Representation Interchange Specification (SEDRIS) in support of Joint Forces Command (JFCOM) joint experimentation (the Trailblazer & now Pegasus projects); the Air Force and Navy Distributed Mission Training (the Tasmanian Devil Project); the NATO Distributed Multi-National Distributed Simulation (DiMuNDS), targeting a multinational division training audience; the first HLA-based and SEDRIS-executed dynamic Environmental Federation (Enviro-Fed); the Navy's Integrated Ship Self Defense Project; and others too numerous to mention specifically.

The projects above and others very much like them are recognized each year in the DMSO M&S Awards for Achievement (co-sponsored by the National Defense Industrial Association, or NDIA). The processes of accomplishing these projects, submitting the nominations, reviewing the contenders, and selecting the winners from the community by teams of both government and industry is a time consuming but satisfying task -- all of you who helped this process grow and succeed deserve a round of virtual applause for your efforts - Good on Ya!!! Please plan on joining the community for the formal presentation of the awards and celebration with the award winners during M&S Report to Government and Industry on May 23.

See PARTING COMMENTS, p. 8

Director's Corner

Continued from p. 2

Since it was established in 1991 the DMSO has been a leader in guiding DoD M&S - initially through "Focus Call" funding of selected projects and, beginning in 1994 to present, to a top-down, strategy-driven investment program aimed at fostering reuse and interoperability via a common technical framework of standards and architectures. We have come a long way. Coincidental with assuming the directorship, the DMSO has been asked reexamine its role. Given the maturity of DoD M&S today and the speed at which technology is changing, we have to be flexible - capable and willing to shift our focus to fit the needs of the M&S community to ultimately serve the Warfighter.

We're in the early stages of developing this New Vector. The initial draft of this effort was briefed to the M&S Working Group (MSWG) members at the March 1 meeting to solicit their input and com-

ments. The discussion below highlights the essence of that presentation.

SLIDE 1 -- "Plan for the Plan"

The "Plan for the Plan" for this New Vector has three main thrusts: *DMSO Transition, DoD M&S Integration and Execution*. Both the DMSO Transition and the DoD M&S Integration will be conducted near simultaneously. We're already moving out with the DMSO Transition, which includes developing a vision, strategy, plan and reviewing our resource allocation. We expect to complete the Transition by the end of April. You'll see the vision and strategy in slides 2 and 3. At the same time we have initiated efforts to develop an integrated M&S implementation strategy for DoD. LtCol Mac McKeon, Chief of the DMSO Technology Applications Division, is heading

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DIRECTOR'S CORNER

Continued from p. 3

up the DoD M&S community team to develop the initial draft of the DoD M&S Integrated Implementation Plan. This initiative will be briefed to the Executive Council for M&S (EXCIMS) in April to solicit their initial guidance. We expect to provide the final draft of the plan to the EXCIMS in July for final guidance and approval before launching into its execution. This will not be an easy task. Such an undertaking will require the dedicated effort by all the DoD M&S team.

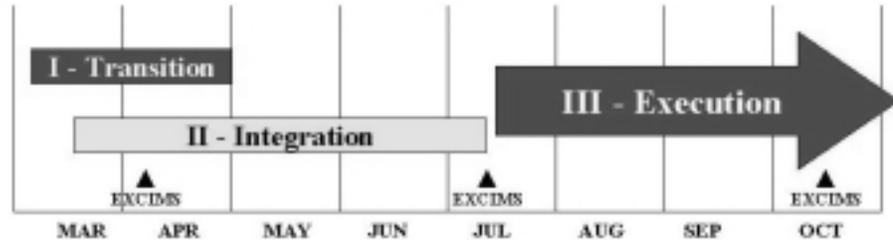
SLIDE 2 -- DMSO Vision

We tried to keep the DMSO vision simple and straight forward and easy to remember. Simply put it is to "*Lead, Integrate and Leverage M&S for the Warfighter.*" We included "lead" in the vision because the DMSO has been a recognized and acknowledged leader in DoD M&S for as long as it's existed. But, we don't have all the answers so you'll see us relying heavily

The "Plan for the Plan"

Mission: Develop a plan to execute a New Vector for DMSO

Concept: 2 near simultaneous thrusts followed by execution



Objectives:

- I DMSO Transition: Develop vision, strategy, plan, organize & resource
- II DoD Integration: Draft DoD *integrated* M&S Implementation Strategy
- III Execution: Execute the Plan

Slide 1

DMSO Vision

- **Lead and Integrate the DoD M&S community; and**
- **Leverage M&S science and technology advances**
- **to ensure that the Warfighters of today and tomorrow have superior and affordable M&S tools, products and capabilities to support their missions and to give them revolutionary war-winning capabilities.**

Lead, Integrate and Leverage M&S for the Warfighter

Slide 2

See DIRECTOR'S CORNER, p. 5

DMSO Core Capabilities

- Lead in the development and execution of the DoD M&S Policy and Master Plan.
- Assist in the identification, integration and prioritization of Warfighter M&S needs/requirements.
- Maintain awareness of and recognize the potential utility for M&S science and technological advances that can be leveraged to support the Warfighter.
- Lead in execution of the DoD M&S Implementation Strategy to support the Warfighter in the near, mid and long term.

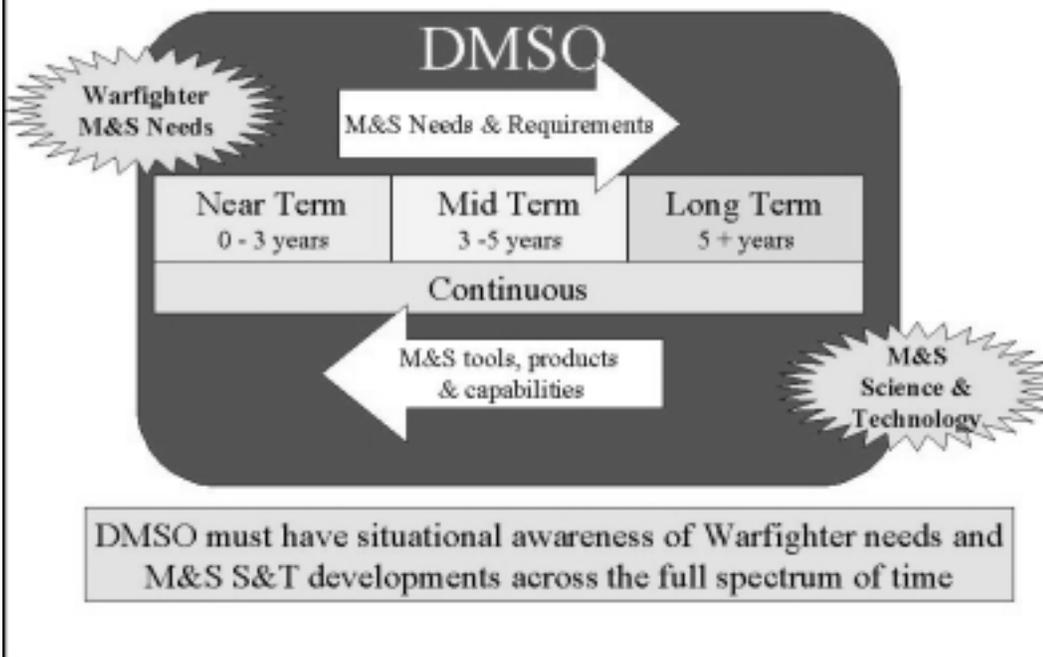
Slide 3

DIRECTOR'S CORNER

Continued from p. 4

on the community for perspective, advice and ideas to chart the new course and take on the task of integrating our collective M&S capabilities and resources. Integration is going to be one of those things that's easier said than done. COL Steve Collier, Army M&S Office Deputy Director, put it well in our MSWG discussion when he said "You don't know what you don't know, but sometimes you don't know what you 'do' know either." Not having a handle on what we "do" know costs us money. We can't afford to have two or more DoD M&S organizations investing in unnecessary, redundant M&S tools, products or capabilities. Part of our leadership role is to look out across the DoD and industry and into the future and spot those good M&S ideas and technology advances that we can invest in and bring to the Warfighter sooner rather than later. The Warfighter doesn't have the time or resources to do that. He's focused on

DMSO Strategic Plan: Concept



Slide 4

See *DIRECTOR'S CORNER*, p. 6

DIRECTOR'S CORNER

Continued from p. 5

operations and planning in the near and mid term. I'll say more about this key responsibility when I talk about DMSO core capabilities.

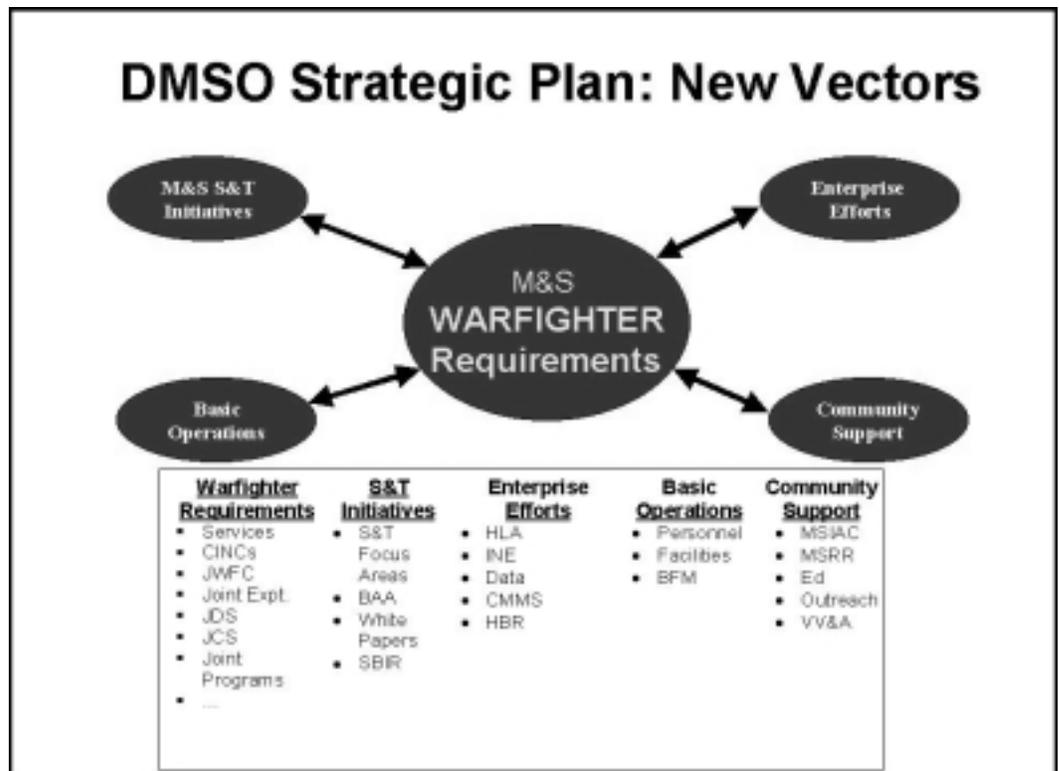
The "Warfighter" referred to in the DMSO vision focuses on the primary purpose of the DoD M&S effort and is intended to encompass the Warfighter in the broadest sense of the word. We include the Services, the Joint Community and the OSD across the functional areas of training, analysis, acquisition and experimentation. However, let there be no doubt, that it is the Warfighter at the "tip of the spear" that should ultimately gain the benefit of all DoD M&S efforts.

SLIDE 3 -- DMSO Core Capabilities

The core capabilities are those enablers the DMSO brings to the table to support the Warfighter. One of the key things we can offer is watching both the present and future for science and technological advances that can be leveraged for the Warfighter. There are things out



Slide 5



Slide 6

See DIRECTOR'S CORNER, p. 7

DIRECTOR'S CORNER

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there that the Warfighter doesn't know he needs, but once he gets them or when the future gets here he'll wonder how he lived without them. I'll give you an example. In 1975 I didn't know I needed a computer in my home. I paid my bills, balanced by checkbook, wrote letters, kept my calendar, played with my investments and did my taxes by hand on paper. Fifteen years later I don't know what I'd do without my computer to do all those things. If you took it away it would mean a major readjustment for me. That same thing is true for the Warfighter. There are technologies percolating out there that potentially offer great utility in the future. The DMSO is situated and suited to that task. We need to be the Warfighter's eyes and ears for M&S potential across the full spectrum of time and we need to know what his M&S requirements are to guide our search.

SLIDES 4 and 5 -- DMSO Strategic Plan: Concept

These two slides illustrate how we view the task of maintaining situational awareness across time. There's a circular flow in the process of identifying near, mid and long term requirements and finding the scientific and technological solutions for each time frame. The process is continuous. M&S tools, products and capabilities identified and capitalized on in the mid and long terms will eventually move into the near term as time passes and they reach maturity. Warfighter experience with those once-future, now-present solutions will likely contribute to new mid- and long-term requirements. The two slides look very similar but in the second one we labeled each block of time with the function intended to maintain awareness in that particular time frame. Again there's a block indicating a continuous flow from future to present. This represents the "Community Support" provided by M&S resources such as the M&S Information Analysis Center, the M&S Resource Repository, the M&S Education program and proactive outreach programs that provide a conduit for the collective M&S community to share information throughout the life-cycle of a tool, product or capability from concept to fielding.

SLIDE 6 -- DMSO Strategic Plan: New Vectors

Finally, this slide provides greater detail to illustrate the focus of these vectors. The "Warfighter Requirements" and "S&T Initiatives" columns list

sources and resources for maintaining situational awareness. The items listed under the "Enterprise Efforts" and "Community Support" columns are projects, resources and services that we currently contribute to the community and will continue to offer. The DMSO will continue to support those major DoD M&S programs currently in place such as the HLA and Integrated Natural Environment. These efforts were conceived and continue to be executed based on a sound strategy to meet Warfighter needs. The "Basic Operations" simply recognizes that there is an overhead associated with doing business.

This has been a long read, but I wanted to share our thinking with the DoD M&S community. We don't have all the answers. If we're doing something dumb let us know. Over the next few months we'll be working through the M&S Working Group (MSWG) and EXCIMS to refine our plan.

We welcome your comments, both in our normal EXCIMS channels as we staff our plan, and informally. I'd ask that if you wish to share your comments informally you send them to ASK_DMSO@dmsomil, so that we can consolidate them for review.

We'll keep you informed.

Respectfully,
Forrest

ASK DMSO • ASK_DMSO@dmsomil

Have a question about the DMSO, its programs or DoD M&S policy, but don't know who to call? Send your query to ASK_DMSO@dmsomil. We'll sort it out, send your question to the right people and get you an answer.

What, when, where? Here!!!



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Guest's Corner

Wargame 2000 takes wargaming to higher level, "C2 Sim 99" exercises future missile defenses

By Charlotte Shearer
Wargame 2000 Program Manager
Joint National Test Facility

The Ballistic Missile Defense Organization (BMDO) has been tasked with developing a National Missile Defense (NMD) system capable of defending the United States from a limited ballistic missile attack and a Theater Missile Defense Family of Systems (FoS) capable of defending United States Forces wherever they are deployed. These systems represent a huge national investment and an array of technical and interoperability challenges.

Wargame 2000 is a wargaming simulator that answers the challenge by providing a flexible NMD and Theater Missile Defense (TMD) environment for conducting concept of operations (CONOPS) development and verification through operator-in-the-loop wargames. Unlike training simulators, which focus on modeling fielded equipment, Wargame 2000 represents future as well as current missile defense architectures and systems. It allows the primary users, the warfighters, to explore their intended CONOPS, tactics, techniques and procedures. Additionally, Wargame 2000 uniquely bridges the acquisition and joint operational communities by enabling the acquisition community to evaluate the behavior of alternative architectures and system capabilities.

The Joint National Test Facility (JNTF) has hosted over 23 major wargames, workshops and seminars that demonstrated the real-world NMD Battle Management Command, Control and Communication (BMC3) Prototype in support of the National Missile Defense Joint Program Office (NMD JPO) and United States Space Command (USSPACECOM). Most recently, from November 15-19, the JNTF conducted Command and Control Simulation 99 (C2 Sim 99) using Wargame 2000 to enable USSPACECOM and the NMD JPO to exercise future missile defense concepts. The four-day event consisted of two days of player training followed by two days of scenario-driven operations. Subject-matter experts from throughout the defense community participated in this highly successful event.

Key components of the Wargame 2000 architecture during C2 Sim 99 included the integration of the operational prototype NMD BMC3; the Wargame 2000 Resource Repository (WRR), designed for extensive data collection and information retrieval; and the Missile Defense Space Tool (MDST) that provided Defense Support Program (DSP) and Space Based InfraRed System (SBIRS) capabilities. The integration of these components was enabled through use of the DoD High Level Architecture (HLA) concepts developed by the Defense Modeling and Simulation Office (DMSO). These HLA efforts are now benefiting the larger NMD community as the Wargame 2000

large number of processors and/or computers to meet large computational burdens. Wargame 2000's advanced technology all but eliminates the need to constrain the simulation for real-time execution. It can simulate more defense elements at a higher fidelity, operating in more complex and realistic environments than possible with other wargaming tools. While the high-end capabilities are formidable, it provides a variable-fidelity capability and enables portable operations for smaller applications.

Events hosted at the JNTF also explore new areas of U.S., joint and combined warfare, including future concepts such as upper-tier allocation and integration into



Photo courtesy of JNTF

Air Force Gen. Meyers, Commander-in-Chief, U.S. Space Command, and MGen Bartram, Canadian Forces, participating in C2 SIM 99.

Federation Object Model (FOM) is being used as the starting point for an NMD FOM.

With previous missile defense simulations, it was often necessary to simplify the simulation by reducing scenario complexity or modeling fidelity in order to maintain real-time execution. Wargame 2000 has pioneered the way in harnessing the processing capability of today's high performance computers. It's internal simulation engine is leading the M&S community in Parallel Discrete Event Simulation (PDES). PDES allows models and simulations to harness a

theater force structure. Interoperability is one obstacle that must be overcome to realize the TAMD FoS vision. Because Wargame 2000 uses actual tactical messages in its system representations, it can enhance field exercises or other hardware-in-the-loop tests by providing high-level integration between simulated future missile defense system elements and today's real Battle Management Command, Control, Communication, Computers and Intelligence (BMC4I)

See *WARGAME 2000*, p. 9

Pegasus augments joint experimentation tools

By Jim Calpin
DMSO HLA Cadre

As the U.S. Joint Forces Command (USJFCOM) moves into its second year of experimentation it is augmenting its inventory of experimentation tools with the use of Pegasus, a federation of simulations co-sponsored by the Defense Modeling and Simulation Office (DMSO) and the USJFCOM Joint Experimentation Directorate (J9). This federation provides a toolset for assessing key issues facing the future systems planning and assessment which is at the heart of the joint experimentation initiative.

The focus of this year's study is on the ability of U.S. forces to conduct future operations against tactical ballistic missiles (TBMs) in the presence of a highly capable air defense system - a problem set tailored to the strengths and capabilities of the Pegasus federation. The federation is currently undergoing augmentation and integration to prepare for a major analytical event later this summer. The results of the Pegasus effort will lay the foundation for future J9 experimentation, as well as provide near-real-time input and feedback to other ongoing J9 experiments in this mission area.

The detection and destruction of TBMs have proven to be a vexing issue since these systems were first encountered operationally on the modern battlefield in Iraq almost 10 years ago. Despite dedicated and sometimes Herculean effort, the performance of coalition sensor and strike systems against this challenging target set during Operation Desert Storm left something to be desired - in fact, most studies do not credit even a single destruction of a Scud

missile to the coalition effort. Although improvements have been made in the intervening years, the challenges posed by these systems are tremendous, and the specter of TBMs equipped with weapons of mass effect (WME) haunts many operational planners in the joint community.

It is hoped that emerging technologies, coupled with innovative doctrinal and organizational developments will greatly improve our performance against these threats. Most recognize, however, that determining the optimal mixes of sensors, weapons and tactics for this high-priority mission area will require a dedicated experimental approach. USJFCOM, as the executive agent for joint experimentation efforts within the Department of Defense, has focused its attention this year on addressing the problem of critical mobile targets. Pegasus, a DMSO-sponsored simulation federation, will assist in the necessary exploration and experimentation.

The Pegasus federation was originally developed just over 18 months ago as a "trailblazer" effort intended to provide the DMSO with lessons learned concerning the use of the Federation Development and Execution Process (FEDEP) in support of analytical objectives. The original federation, consisting of the Army's ground combat model Eagle, the Navy's Naval Simulation System (NSS), and a variant of the Army's Extended Air Defense Simulation (EADSIM), proved highly successful in this regard, providing valuable feedback and allowing subsequent evolution of the FEDEP.

The success of this very limited effort caught the eye of officials at the newly or-

ganized Joint Experimentation Directorate (J9) at what was then U.S. Atlantic Command. The federation was attractive at a number of levels; for example, Uniformed Service-specific assets were represented by Service-accredited simulations (e.g., Navy ships were represented by the NSS, Army units by Eagle); command and control was explicitly represented; the federation was capable of faster-than-real-time operations, and was capable of classified operations. These attributes were deemed especially useful for an organization like J9, whose charter was to explore future joint operations and the means to improve or enhance them - Pegasus seemed like a very useful "tool" in the J9 organizational "toolbox." By mid-1999, the DMSO joined in a full partnership with J9 to assist in the adaptation of the federation to support joint experimentation requirements.

As part of this year's study, the Pegasus federation has been expanded to include two new federates: Simulation of the Land Attack of Mobile Enemy Missiles (SLAMEM), and Analysis and Execution (A&E). SLAMEM will represent the majority of the sensor platforms and systems present in the battlespace, while A&E will represent an advanced sensor data fusion and target nomination function. Coupled with the robust combat simulation federates in the existing federation and combined with the suite of DMSO-sponsored federation support tools (e.g., the Data Collection Tool and the Federation Management Tool), Pegasus is proving to be a potent mechanism for examining complex joint issues.

For more information contact Jim Calpin, calpinj@mitre.org.

Wargame 2000

Continued from p. 8

equipment. By extending the tactical message set within the Wargame 2000 Joint Data Network model, for example, the practical effectiveness of proposed FoS interoperability features can be evaluated.

Wargame 2000 is able to execute its mission due to the excellent staff, equipment and facilities located at the JNTF. The JNTF wargaming center provides a top-notch location for conducting events using Wargame 2000. JNTF network connectivity leverages the capability within other modeling and simulation facilities worldwide and allows Wargame 2000 to support geographically diverse wargames using modern dispersed simulation protocols.

In summary, the BMDO and JNTF are taking wargaming to a higher level. Wargame 2000's combination of skilled staff, advanced simulation technologies, performance-oriented architecture, state-of-the-art computing and unique wargaming facilities is delivering needed capabilities to the air and missile defense community. Wargame 2000 is a critical capability on the path to "making missile defense a reality."

For more information visit the JNTF web site at <http://www.jntf.osd.mil/>.

Parting comments

Continued from p. 3

This article has been intentionally written from a first person perspective -- it has been a challenge and pleasure for me serving with you all in the role as Director, DMSO. I now depart to work as Special Advisor for Dr. V. Garber, Director of Interoperability, USD(AT&L) - an area extremely rich for application of M&S technologies and applications in support of improved combat and business effectiveness. Somehow I'm sure many of our flight paths will cross closely again in the future.

Cheers,
Crash

Professional Postscripts -- I have recently received information of additional upcoming key personnel changes/transitions in the community. Army Maj. Gen. Close, Director, Joint Staff J7, is headed for retirement and will be missed in many dimensions, but especially in his role as co-chair of the Training Council. Air Force Col. "Duke" Wayne, has been the JFCOM rep to the M&S Working Group -- one of the voices representing the warfighter around the table as the community plowed through the thorny M&S issues of the day. We wish these folks (and those I might have overlooked) well in their new endeavors - whatever they may be!!!

M&S Education

Courses continue to attract students worldwide

By Tom Stanford

DMSO M&S Education Project Lead

Defense Modeling and Simulation Office (DMSO)-sponsored modeling and simulation (M&S) education courses continue to flourish and to attract students worldwide who are interested in learning about M&S.

The DMSO's flagship course, the M&S Staff Office Course (MSSOC), has been conducted this year in Norfolk, Va., hosted by the Commander, Operational Test and Evaluation Force (COMOPTEVFOR); and at Edwards AFB, Ca., hosted by the 412th Test Wing. A total of 65 students from all corners of the M&S world, to include contractors and allies, graduated from these courses with a greater understanding of M&S in the Department of Defense (DoD). They also came away with a wide variety of contacts and information sources throughout the M&S community.

The schedule for upcoming MSSOCs:

- MSSOC 00-3, 24-28 April, DMSO, Alexandria, Va.
- MSSOC 00-4, 19-23 June, DMSO, Alexandria, Va.
- MSSOC 00-5, date to be determined, Warrior Preparation

Center, Germany

- MSSOC 00-6, 25-29 Sep, DMSO, Alexandria, Va.
- MSSOC 00-7, 16-20 Oct, DMSO, Alexandria, Va.
- MSSOC 00-8, 11-15 Dec, Orlando, Fla.

Those interested in attending one of these courses should visit the DMSO M&S Education Project web site at <http://www.education.dmsomil/>.

Click on "MSSOC," to register online. There is no registration fee.

The DMSO's one-day Program Management Office (PMO) M&S Workshop, a course designed to support the M&S acquisition community, is scheduled this year at the following locations: Eglin AFB, Fla.; Kirtland AFB, NM.; Arnold AFS, Tenn.; and the Apache PMO at Redstone Arsenal, Ala.

MS 101, the half-day M&S overview tutorial, is scheduled for presentation at the DMSO's Industry Days in May. It will also be offered at the Industry and Interservice Training, Simulation and Education Conference (I/ITSEC) in Orlando in November. Two other offerings of MS 101 are currently being coordinated.

For more information contact Charles Snead (703) 933-3342, csnead@msiac.dmsomil, for DMSO-sponsored courses; Denny Murphy, (703) 933-3330, dmurphy@msiac.dmsomil, for non-DMSO sponsored courses; or Tom Stanford, DMSO M&S Education Project Lead, (703) 933-3343, tstanfor@msiac.dmsomil.

New M&S University underway at MSIAC

A new modeling and simulation (M&S) education effort is currently underway at the Modeling and Simulation Information Analysis Center (MSIAC) called the "M&S University" or M&S U. "M&S U." will support and enhance the MSIAC mission as the community's M&S service provider. The M&S University's vision is to establish itself as a center of excellence, recognized worldwide as a primary source of M&S education and training. Two departments have been established under the M&S U. Charles Snead leads DMSO-sponsored course efforts. The second department is led by Denny Murphy, who supervises non-DMSO sponsored education and training events.

M&S U.'s implementation strategy is simple:

- establish immediate, near-term, long-term and sustained activities;
- publicize capabilities to support a "portfolio" of M&S course options;
- maintain close contact with existing customers for M&S education and training courses;
- establish innovative alliances and coalitions to target M&S learning "needs;"
- and create new M&S learning opportunities.

Most importantly, M&S U. will stay with the formula that has made it successful to date - great M&S courses taught by great instructors.

M&S U. is working with a wide variety of DoD organizations to bring M&S instruction on-site rather than having to send large groups of people offsite to get the required M&S training and education. Locations where M&S U. instruction is already scheduled for presentation in 2000 include: Eglin AFB, Fla.; Lackland AFB, Texas; Hanscom AFB, Mass.; the Defense Leadership and Management Program (DLAMP), Alexandria, Va.; and White Sands Missile Range, N.M. Coordination on additional instruction opportunities at other DoD and international M&S forums is ongoing.

For more information contact Charles Snead (703) 933-3342, csnead@msiac.dmsomil, for DMSO-sponsored courses; Denny Murphy, (703) 933-3330, dmurphy@msiac.dmsomil, for non-DMSO sponsored courses; or Tom Stanford, DMSO M&S Education Project Lead, (703) 933-3343, tstanfor@msiac.dmsomil.

ADS

Continued from p. 17

The Authoritative Data Source (ADS) Library has implemented the first increment of its cross-site search capability. The interoperability with Uniformed Service and DoD agency repositories that this brings is a giant leap forward. A user is provided access to the vast resources of the multiple M&S Resource Repository (MSRR) sites through one familiar and user-friendly site. Whether the source information resides on the DMSO ADS Library or other Service's MSRR sites does not restrict the access to the source metadata. Increasing the flexibility and user friendliness of this capability remains the number one priority for new work.

The ADS Library has also initiated a process for the annual update of every source metadata record. This maintenance process

will insure the currency of the description, which is critical to your source selection decision process, and point of contact information that is crucial to acquisition of the final product.

New high-speed server

The responsiveness of the ADS Library has been enhanced by hosting it on a new high-speed server at the M&S Information Analysis Center (MSIAC).

We continue to strive to increase the number of sources cataloged and to standardize the information contained on data sources at all repository sites.

For more information

For more information contact Mike Hopkins, (703) 998-0660, mhopkins@dmsomil.

NATO continues to make progress in M&S; MSCO up and running at RTA in Paris

By Leon Armour
DMSO International Relations

NATO is making progress in implementing the NATO Modeling and Simulation Master Plan (NMSMP). The NATO Modelling and Simulation Group (NMSG) had its Terms of Reference (TOR) approved by the NATO Research and Technology Board (RTB) and the group is progressing in its assimilation as a Level II panel under the RTB structure.

The NMSG is a senior-level body responsible for ensuring the coherent management and coordination of modeling and simulation (M&S) activities across the Alliance. It oversees the Modelling and Simulation Coordinating Office (MSCO) which manages the day-to-day M&S activities in NATO.

The MSCO is up and running at the Research and Technology Agency (RTA) in Paris. The office is staffed through Voluntary National Contributions (VNCs) from the Nations. It currently has two full-time staff: the MSCO Head, Graham Burrows, United Kingdom, and the Deputy Head, Cmdr. Gregorio Ameyugo, Spain. Mr. Jean-Louis Igarza, France, is due on board part-time as the Chief Scientist in April. The MSCO continues to receive posi-

tive responses from the Nations in the form of VNCs to support the office staffing and the Technical Activity Projects (TAPs) until funding is available.

National teams are ready to begin the 2000 TAPs. The TAPs are:

1) Distributed Mission Rehearsal (DMR) for NATO Combined Air Operations, led by the Netherlands, is a joint project with the Systems Analysis and Simulations (SAS) Panel of the Research and Technology Organization (RTO);

2) M&S Support from Pathfinder Programmes to Bi-Subordinate Command (Bi-SC) Staff Training And Exercises Capabilities, led by France;

3) M&S Technology in Support of Simulation Based Acquisition (SBA), led by Germany;

4) M&S Support to Non-Article 5 Activities, also led by Germany; and

5) Distributed Learning and Simulation to Support the Partners for Peace (PfP) Training and Education Enhancement Programme (TEEP), led by the MSCO, is awaiting approval by the RTB.

The NMSG will be seeking approval of two additional TAPs for 2001 at the next RTB

meeting. They are: 1) Pathfinder Simulation Federation Development and Execution Process (FEDEP) Support Tools, led by the U.S. and 2) M&S Support to Assessments of Extended Air Defence Command and Control (C2) Interoperability, led by the Netherlands.

The activity in the NMSG and MSCO has kept both groups busy.

Erich Schwan, Germany, the NMSG Vice-Chairman expressed the appreciation of the entire group to U.S. Air Force Colonel "Crash" Konwin, Chairman of the NMSG and Director of the U.S. Defense Modeling and Simulation Office (DMSO), who departed in March for an assignment as special advisor to the Director of Interoperability in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics. Schwan thanked Konwin for his outstanding leadership and guidance during this first critical year of the NMSG. A new Chairman will be elected at the next NMSG meeting in July.

For more information regarding the DMSO international program contact Leon Armour, (703) 824-3421, larmour@dmsomil.

DAVIE can be installed at any site with SQL

By Bob Senko
DAVIE Project Manager

The Defense Modeling and Simulation Office (DMSO) has fielded the Data Verification Interactive Editor (DAVIE) data quality checking tool. The DAVIE is a software application primarily designed to check the quality of data.

DAVIE can be installed at any site having a structured query language (SQL)-based Relational Database Management System (RDBMS) such as Oracle, IBM Database 2, Ingres, Sybase, Informix and many other Open Data Base Connectivity (ODBC) compliant database systems. DAVIE runs on Windows 95, or Windows NT 4.0 and requires an SQL-based, ODBC compliant RDBMS at the user site. The target DB can be held internally in DAVIE or be accessed through networks.

DAVIE users verify data by entering data descriptions into the DAVIE data directory and data element dictionary, either through manual entry or automated download from the source, then creating rules to verify the data. Some rules, such as blank checks, duplicate checks and domain checks are semi-automated by check boxes. Other rules are created in the form of SQL statements. The target database is then

copied into the DAVIE and the rules are executed. The DAVIE displays rules violations and high-lights problem records.

If problems are found, the user can either send a system-generated report to the data owner for correction or make on-the-spot corrections in the DAVIE copy of the database. If the user elects to change the database, the DAVIE will generate SQL statements to send to the owner of the original data and output a report showing any data that was changed, with a view of the original and changed data and the complete set of rules from the verification run.

The DAVIE is available as Government-Off-The-Shelf (GOTS) equipment through the DMSO, which can also provide initial training. Extensive online help is also available. It is in use by the Conceptual Models of the Mission Space (CMMS) Library, the U.S. Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC) at White Sands, N.M., and the All Service Combat Identification Evaluation Team.

For more information contact Bob Senko, rsenko@dmsomil, or Mike Hopkins, (703) 998-0660, mhopkins@dmsomil.

9th annual CGF&BR conference set for May

By Dr. Ruth Willis
DMSO Human Behavior Representation Project Manager

The 9th Annual Computer Generated Forces and Behavioral Representation (CGF&BR) Conference will be held May 16-18 at the Holiday Inn, International Drive, in Orlando.

The challenge before the computer generated forces community is to connect knowledge and theory of human behavior with robust modeling technologies to deliver computer representations that act realistically without human intervention.

The annual CGF&BR event provides a forum to address a broad range of modeling and simulation issues. The conference enables users of computer generated forces and technical communities to meet, share ideas and experiences, and identify gaps in current capabilities as well as high-light promising technologies.

For more information about the conference or previous conferences visit the Simulation Interoperability Standards Organization (SISO) web site at <http://www.sisostds.org/cgf-br/index.htm>.

NATO CAX

HLA supports NATO exercise in Turkey

By Zach Furness
DMSO HLA Cadre

During March, the DoD High Level Architecture (HLA) Run Time Infrastructure (RTI) was successfully used for the first time to support a NATO computer-aided exercise (CAX).

Exercise Disciplined Warrior 2000 is an annual NATO-sponsored exercise in support of the Joint Command Southeast -- part of the Allied Forces Southern Command (AFSOUTH), located in Izmir, Turkey. For the first time, the HLA provided interoperability between the major M&S components during this CAX - the Joint Theater Level Simulation (JTLS), multiple land, air, and naval Order Translation Modules (OTMs), and an Aggregator.

The use of the HLA as the means for interoperability provided distinct advantages over previous simulation architectures used to support exercises.

NATO exercises have long depended upon JTLS as the primary wargame for portraying multi-sided warfare. Until recently, the response cells -- the personnel in charge of inputting orders into the game -- relied upon the Graphical Input Aggregate Controller (GIAC) terminals to input orders into JTLS. The NATO Consultation, Command and Control Agency (NC3A) has recently introduced the use of OTMs into exercise response cells that provides improvements in the ability to control larger numbers of units via aggregation of JTLS units and perform quicker execution through the use of pre-planned responses. By developing HLA interfaces for both these systems, it was hoped that benefits of using a standard interface could be realized while potentially improving the data-exchange mechanism.

The move to HLA also allowed the use of the Federation Management Tool (FMT), a Defense Modeling and Simulation Office (DMSO)-sponsored product that provides visibility into the RTI for monitoring simulation operations between JTLS and the OTMs. This capability proved crucial during the exercise to perform troubleshooting, coordinate simulation operations and collect data on performance.

"The FMT was very helpful in identifying the source of some of the problems during the exercise", said Anton Van Weel, lead developer for the HLA version of the OTMs. "During previous tests without the FMT it was often difficult to know what was going on between the federates."

The prime benefit of HLA seems to be an improvement in performance between JTLS and the OTMs. Until the application of the HLA, the interface between these two systems relied upon the use of an Oracle database that often was a bottleneck for object updates between the components.

"HLA provides better performance over the previous database connectivity," Van Weel said. "In previous

exercises the response cell tools often had difficulty keeping up with events."

This improvement in processing actually led to an extension of the architecture during the exercise. Initial plans had called for the HLA to be used only between one of the opposing force (OPFOR) response cells and JTLS. However, after gaining confidence in its performance early in the exercise, OTMs from both of the OPFOR cells were incorporated into the architecture. This effectively doubled the number of objects on the RTI to upwards of 20,000, without any perceptible change in performance.

The use of the federation in Disciplined Warrior 2000 marked the culmination of two years of development, integration and testing of the models and RTI team. The development of the federation was a joint effort sponsored in part by the DMSO and the NC3A. The models used in Disciplined Warrior 2000 are actually a subset of a larger federation that also includes the Global Command and Control System (GCCS), and two NATO command and control (C2) systems. Throughout Fiscal Year 1998, several demonstrations were conducted that highlighted the capability of the federation to pass unit status data from JTLS to the OTMs and C2 Systems and orders from C2 systems and OTMs back to JTLS. During Fiscal Year 1999, work focused on addressing operational issues for exercises such as crash recovery, improving performance and strengthening reliability. In January, the federation successfully completed its final operational test using RTI 1.3 version 7.

The successful application of the RTI in this exercise will build confidence that it can be used in larger, more complex CAX operations. Based on the success of this exercise, NATO is continuing to explore new applications of the HLA in support of exercises. The NC3A is evaluating other HLA tools such as the Data Collection Tool (DCT) for incorporation into future exercises as an After Action Review (AAR) application. The potential also exists for use of the federation with the NATO C2 system interfaces, as originally developed.

The success should also translate into lessons learned for the Distributed Multi-National Defense Simulation (DiMuNDS) 2000 federation that will apply HLA to U.S. and other European wargame simulations. This federation is still under development, but will use the same HLA version of JTLS and the FMT. The exercise experience should also prove beneficial in exercise Lucky Sentinel in April, a JWFC exercise that will use the HLA version of JTLS with the Extended Air Defense Simulation (EADSIM).

For more information contact Zach Furness, (703) 883-6614, zfurness@mitre.org.



**NATO Joint Command
Southeast**

Tasmanian Devil project completes first phase

By John Tufarolo
DMSO HLA Cadre

In December, Tasmanian Devil, a cooperative project between the Defense Modeling and Simulation Office (DMSO), the Air Force Research Laboratory (AFRL) in Mesa, Ariz., and the Navy Manned Flight Simulator (MFS) Facility in Patuxent River, Md., completed the first phase of a High Level Architecture (HLA) Cadre application project to demonstrate the technical viability of the HLA for supporting distributed mission training.

The demonstration successfully used the Runtime Infrastructure (RTI) 1.3 NextGeneration VXworks real-time port in an HLA federation of heterogeneous platforms. It implemented radio in cooperation with ASTi commercial tool development, demonstrated the use of a common federation object model (FOM) across two different federations address a common domain and further demonstrated the utility of agile FOM interfaces.

Distributed mission training is a general term that refers to the ability to conduct mission-level training at geographically disparate locations. When applied to aircraft training, it includes the capability to conduct basic engaged maneuvers and to link multiple aircraft simulators together to develop complex team fighting concepts. It can also include full mission training in a simulated combat environment at the basic employment-formation level. Training of this type is of keen interest to both the Navy and the Air Force. Existing training systems do not offer the capability to train in multi-ship roles and at distributed locations. Resource constraints and safety considerations also limit the use of aircraft sorties to meet this training need. The application of advanced simulation technology is envisioned to provide for an increase in this vital aspect of flight training.

The Air Force initiated its Distributed Mission Training (DMT) program in early 1997 to advance its training in the "dmt" domain. The Navy also has similar activities surrounding its use of simulation technology for this domain. For the remainder of this discussion, "dmt" refers to the general distributed mission training domain rather than the Air Force, or any other Service-specific, program.

Tasmanian Devil Project

In Fiscal Year 1999, the DMSO, the AFRL Warfighter Training Research Division (AFRL/HEA), and the Navy Air Combat Environment Test and Evaluation Facility

(ACETEF) Aircraft Simulation - Manned Flight Simulator (MFS) began a cooperative effort involving the application of HLA to "dmt." This project - Tasmanian Devil, or Taz - was designed to gain experience in the application of the HLA. Two separate federations were designed and implemented following a common federation design process and using a single FOM. The culmination of these efforts was two federation demonstrations in December. These demonstrations illustrated the technical feasibility of the HLA for supporting "dmt." Phase II of the project will continue into this fiscal year and focus on improving federation robustness, management and performance.

The federations

The Taz project included the development of two separate federations in the context of a single federation development process. One federation was developed at the MFS facility in Maryland and the second was developed at the AFRL facilities in Arizona.

Both federations shared an identical FOM and a number of federates. The Joint Semi-Automated Forces (JSAF) federate was included to represent threat aircraft, surface-to-air missile sites and missiles. A JSAF graphic user interface was also used to support an Advanced Warning Air Control (AWACS) role player. The ASTi radio federates were used to model communications between cockpits, between cockpits and AWACS role players, and to technical controllers. Also used during federation integration and testing were the DMSO Data Collection Tool (DCT), and the Federation Management Tool (FMT). Site-specific federates included F-16 Viper cockpit simulators and a Director Control Station (DCS) at the AFRL, and F-18 cockpit simulators and an ordnance server at the MFS.

Federation Development

The development of the Taz federations proceeded under the auspices of the HLA Federation Development Process (FEDEP). Phase I of Taz included the first five steps of the FEDEP. The next phase will continue additional federation development, testing and eventual federation execution and analysis.

Federation Execution

At the culmination of Taz Phase I, demonstrations were held at both the AFRL and MFS facilities. A single scenario was

used including two defending aircraft versus a specific incoming threat. The scenario was designed to protect friendly airspace against incoming penetrations.

Observations from Phase I

The first phase of the Taz federation demonstrated the technical feasibility of the HLA for supporting a "dmt" type of federation. Specific findings include:

- The HLA was successfully used in a high-fidelity, warfighter-in-the-loop, air-to-air training environment.
- RTI-NG was successfully applied to this federation development.
- A single FOM supported different services and different federations.
- The FEDEP was useful for developing these federations.

Future Plans

Phase II of the Taz project will focus on continuing the development from Phase I, concentrating on robustness, management and performance issues of the federation. The primary goal for the second phase is to extend the demonstration into the operational aspects of applying the HLA in the "dmt" domain.

For more information:

- read "Tasmanian Devil: An Application of the High Level Architecture in the Distributed Mission Training Domain." The paper by A. Zabek, B. Bebbe, G. Barbier and J. and DiCola will appear in proceedings of the Spring Simulation Interoperability Workshop in March.

- visit the following web sites:
AFRL/HEA at <http://www.williams.af.mil/>
ACETEF MFS at <http://www.nawcad.navy.mil/acetef/mfs/index.html>
- or contact John Tufarolo, (703) 883-6253, tufarolo@mitre.org.

• HLA Help Desk •



Have a question about the HLA? Send your query to the HLA Help Desk at hla@dmsomil. We'll get you an answer.

PMRF

Synthetic range study kicks off on Feb. 2

By Dr. Nancy M. Bucher
DMSO Programs & Plans
and Steve Bachinsky
SAIC

In January, a congressionally mandated study was initiated to develop a road map for augmenting the Navy's Pacific Missile Range Facility (PMRF) on the island of Kauai in Hawaii, with simulation to capitalize on the standards-based technology for extending range capabilities and leverage the range facilities to meet growing user requirements. The Defense Modeling and Simulation Office (DMSO) will lead the Pacific Synthetic Range study, working with the PMRF and an advisory group of range and simulation technical experts.

The kick-off meeting for the study was held on Feb. 2 at the DMSO. The study itself will be a 12-month effort.

The DMSO has been tasked to determine the best technical approach for the augmentation of the PMRF. The study will be conducted by a Government/Contractor integrated process team (IPT) composed of experts in the field who have experience in the areas of live and virtual distributed simulation development and use, instrumented test range development and use, and HLA application and implementation.

The study will investigate the feasibility of generating a test and training battle space that enhances the warfighter's combat edge by augmenting it with simulation and related computing technologies. The program will focus on targeted range simulation applications that hold the most near-term promise for generating the most testing and training capability, flexibility and efficiency feasible.

Incremental build approach

The Synthetic Range development will be based on use of DoD standards and commercial/industry best practices. The effort will include the use of existing resources available from the military services and other sources as appropriate to accomplish the Synthetic Range goals in a cost-effective fashion. Development will follow an incremental-build approach to allow for near-term improvements and increases in capability that are immediately useable, and which will progressively build towards the longer-term target objective of a fully augmented Synthetic Range capability. This incremental build approach will begin with the development of an infrastructure, which will serve as the integration environment for all subsequent enhancements. This infrastructure will be based on reuse of existing, externally developed tools integrated with local, organic capabilities. The final configuration, as well as the process followed for its development, is intended to serve as a model for other ranges that are considering synthetic augmentation.

Three main tasks

The current study plan calls for three main tasks: a requirements definition, a technical feasibility assessment and a system development plan.

The requirements definition will include an identification of current and potential range users, analysis of the existing and future requirements of range users, and an identification of areas in which synthetic augmentation can provide significant additional benefit to the range user. The technical feasibility assessment will map the user requirements specification to current state-of-the-art capabilities in modeling and simulation (M&S) and high performance computing (HPC) to determine the feasibility and utility of augmenting the

PMRF with these resources using existing infrastructure services offered by the DoD High Level Architecture (HLA) for simulation. The system development plan will include a candidate system design for the architecture infrastructure, identification of prototype experimentation designed to test the architecture infrastructure, and a road map for a systematic implementation of the full Synthetic Range design. These tasks will lay out the road map for the Synthetic Range development and will follow the systems engineering approach outlined in the HLA Federation Development and Execution Process (FEDEP).

See *PMRF*, p. 15

Pacific Missile Range Facility (PMRF), Kauai Island, Hawaii

The Pacific Missile Range Facility (PMRF), a training range for Pacific Fleet forces, provides an outstanding training and testing environment to support exercises involving space, air, surface and sub-surface elements. It is a fully instrumented range with state-of-the-art equipment to assist the various activities associated with exercise planning, execution and analysis.

"PMRF's primary mission is to provide aerial, subsurface and surface targets for Pacific Fleet combatants in a safe, controlled environment," according to Navy Capt. Brian W. Moss, PMRF Commanding Officer. "To carry out this mission, PMRF has access to 42,000 square miles of instrumented airspace and has a 1,000 square mile deep-water instrumented range. PMRF is able to track, control and record activities under the sea, on the ocean surface, in the air and in space, simultaneously. (While) it is the world's largest instrumented, multi-environment training range ... test and evaluation now typically makes up 30 percent of PMRF's range use annually."

In a continuing effort to better serve its customers, the PMRF is examining how to augment its capabilities with new technologies related to synthetic representation of various components of the battle space. The goal of the augmented "Synthetic Range" is to provide more effective training and testing to users at less cost through the use of modeling, simulation and high-performance computing technologies.

The Maui High Performance Computing Center (MHPCC), ranked as one of the top computing centers in the world, is a state-of-the-art supercomputing facility. As a Distributed Center of the Department of Defense's High Performance Computing Modernization Program, MHPCC provides DoD, government, private industry and academic users with access to high-performance parallel computing technologies, expertise and educational services.

Due to the unique processing capabilities of MHPCC and its proximity to the PMRF, the Pacific Synthetic Range study will attempt to integrate the two facilities to offer superior training and testing capabilities.

For more information visit <http://www.pmrfl.navy.mil/>.

New prototype allows standard Internet browser access to CMMS Data Dictionary

By Bruce A. Harris
CMMS Data Dictionary Program Manager
and Ron Smits
CMMS Data Dictionary Project Engineer

The Conceptual Models of the Mission Space (CMMS) Data Dictionary (DD) continues to evolve. Most recently, a prototype web access to the underlying CMMS-DD data through a standard Internet browser was developed.

The CMMS-DD web site was designed to mirror the series of choices presented to the user of the CMMS-DD tool (Figure 1). Required data access was limited to basic queries that return to the web user the query results on a selected term or perspective. The purpose of the prototype was to verify and validate the underlying CMMS-DD data structure for external programs, such as Eurisko and the Knowledge Acquisition Tool (KAT), as well as enable examination of other dynamic data access issues.

The prototype web site is currently accessible at <http://teams.drc.com/fast/cmms/>. Users can search the database in a number of different ways (including term, acronym and individual attribute searches), view or download reports regarding the database, and obtain source and analyst information (Figure 2). At the top of the home page, and each subsequent page, navigation buttons are displayed to the top level pages, as well as an "up" button for child pages to return to the parent page. The top-level navigation

buttons are essentially shortcuts for users who do not wish to navigate through the splash screen choices that are hot linked and provide the same functionality as presented in the database access tool.

SQL or PivotTable?

Of the two alternatives evaluated for the dynamic access of the CMMS-DD database, the structured query language (SQL) method was selected over the PivotTable list as the most suitable approach to dynamically access the CMMS-DD database and develop the prototype web interface.

A PivotTable list is the right choice when displaying information online from a separate database. A PivotTable list can be used when providing information from a database -- such as Microsoft Access or SQL Server records, or OLAP data from a Microsoft SQL Server OLAP Services database -- in a form that users can interact with and analyze from within the web browser or in a run-time environment. Users of a PivotTable list cannot update or change the underlying source data in any way in the browser. The use of a PivotTable list is recommended if users will not need to enter changes to the data to perform their own calculations but will need to view and analyze existing data. For example, from Microsoft Access, you need a PivotTable list to publish cross tab-style data on a World Wide Web page.

Alternatively, SQL query suitability for the dynamic access requirements of the CMMS-DD was examined. The approach taken here included selecting or creating a database connection. Next, one could create a custom query using an SQL statement to specify the information from the database that needed to be displayed in the database results region on a page. One could insert parameters into the query, paste a query from the Clipboard, or verify the query against the database to ensure that the syntax and parameters were correct. If a form was created that let a site visitor type text or make a selection to return only selected records from the database, the name of a form field could be inserted into the query as a parameter. When the site visitor submitted the form, the value of the form field would be substituted into the query string.

For more information

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PMRF

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Prototype experiments

The prototype experiments approach follows from the approach taken in the design and development of the HLA and will foster an evolution of the required architecture infrastructure for the Synthetic Range through an incremental build process. To achieve this, the prototype experiments must be chosen to address specific aspects of enhanced PMRF capability that:

- have been deemed critical by the requirements definition, e.g., simulated weapons to reduce live-fire testing;
- focus on unique technical enhancements that show immediate "value added" to all vested parties, e.g., broad tool infrastructure for test and training events to assist collaboration between various users;

- challenge the architecture, e.g., examine distributed operations combining live, virtual, and constructive entities from various sites.

Candidate areas for prototype experiments should focus on immediate Navy and PMRF needs, unique benefits and capabilities of the MHPCC, technical challenges in M&S, and merging testing and evaluation (T&E) and training requirements and capabilities for more effective mission rehearsal by allowing for significant "what if" excursions.

A final set of critical experiments is designed to validate the promise of the synthetic range concept, and to leave in place a day-to-day capability that can act as an ongoing beta-site for operational test and training events and more advanced synthetic range investigations.

Testing and training technologies are converging at an ever accelerating pace. More and more testing and training is being

augmented or displaced by simulation. The world of simulation has been dissected into live, virtual and constructive domains. Currently each of these three domains is treated as separate and independent training or testing environments. When these three simulation domains are adeptly integrated within and across distributed sites, an immersive synthetic battle space environment can be created -- one suitable for total system testing and personnel training. In a time of declining resources the increasing value of an integrated live, virtual and constructive simulation environment, a synthesis of a testing and a training range, holds the promise of significantly increasing the effectiveness and efficiency of warfighter testing and training.

For more information

For more information contact Dr. Nancy M. Bucher, nbucher@mail.arc.nasa.gov.

Knowledge acquisition

FDP KAT captures complex concepts quickly

By Cynthia Tuttle
KAT Project Lead
and Wayne Randolph
KAT Support Lead

The Defense Modeling and Simulation Office (DMSO) developed the Formalized Data Product - Knowledge Acquisition Tool (FDP-KAT) to support the Knowledge Acquisition (KA) efforts of the Joint Simulation System (JSIMS) Alliance. The FDP-KAT provides a solution to the challenge of capturing conceptual models of the military mission space in a structured format that facilitates understanding and reuse by simulation developers. Other programs with knowledge acquisition requirements can use the FDP-KAT. This article provides a sample walkthrough using FDP-KAT during the KA process.

KA is difficult task

Knowledge acquisition is a difficult task due to the complexity of the models being described. In order for the models to be useful to software developers, the models must describe a minimum set of objects (e.g. organizations, communication links, information items), processes, relationships between objects and processes, and attributes of objects and processes. The models must be available in a standard, consistent format to facilitate their comprehension and to reveal patterns across models. If a program plans on reusing the models or performing automated analysis of the models, it is critical that the structure and format of the models are available in a computer readable format.

FDP-KAT makes the KA task less difficult by providing the KA author with a set of data entry forms that guide the author in entering the required information. The data entry forms act as templates, modeled after the JSIMS templates for their Formalized Data Products (FDPs) used in their KA efforts. The forms help to provide structure to the models as they are created. The models are stored in a database. The FDP-KAT provides multiple methods of deploying the completed models. The following example of the creation of a FDP Process model will provide more detail on these features as well as additional FDP-KAT features.

A military Subject Matter Expert (SME) is given the task of developing a representation of a real world military operation such as "Conduct Suppression of Enemy Air Defenses (SEAD) Phase." The SEAD mission is designed to increase United States forces' ability to accomplish military campaign objectives by improving the forces' air maneuver survivability. SEAD involves neutralizing, destroying, or temporarily degrading enemy air defense systems through either physical attack or electronic warfare attack. Aircraft using a variety of weapon systems to temporarily or permanently disable the defenses accomplishes the physical attack. The electronic warfare attack uses specialized aircraft that electronically jam enemy radars and/or the communications systems associated with the defense. Jamming the radar and/or communication reduces the effectiveness of the defense.

Prepare in advance

Before defining any models, several preparations should be made by a KA Administrator. These advance preparations include locating and approving data sources, identifying and importing existing models that are candidates for reuse, and identification of which models need to be created. Data sources identify the origin of the information being captured. An example of a data source used in the Conduct SEAD Phase model is Joint Doctrine For Theater Counterair Operations. FDP-KAT allows data sources to be loaded into the database ahead of time so that they are available in dropdown lists for easy selection by the authors while defining models. Authors may save time by basing their models on an existing model housed in the Conceptual Models of the Mission Space (CMMS) Common Library. The Conceptual Models of the Mission Space (CMMS) Common Library and FDP-KAT support the CMMS Data Representation Interchange Specification Data Interchange Format (CMMS-DRIS DIF) which enables them to share information using Extensible Markup Language (XML). The FDP-KAT can import models in the form of XML files produced by the CMMS Common Library. Once models have been identified as targets for creation, their bare-bones description (Title and Unique ID) can be entered into the database. Entering the names of the models in advance makes them available to the authors in dropdown lists for easy and quick selection when defining relationships between models. Such advanced preparation while not absolutely necessary, is strongly recommended since it speeds up the creation of the models.

Five options to choose from

Upon opening the KAT from the Start menu, the SME enters the Main Switchboard, the starting point for KAT activities. The SME has one of five options to choose from Overview, Models Switchboard, Administration Switchboard, About KAT and Exit. Overview gives a graphical interface that displays a navigation diagram of the fundamental KAT activities and a logical order in which they are performed, probably the best place to start for the SME. The fundamental KAT activities are FDP editors, import and export models, analyze models, publish reports and administer KAT.

The SME is tasked with developing a process model of Conduct SEAD Phase. The KA administrator has already entered the metadata and title for the model. The SME double clicks on the "Edit Processes" option and finds the assigned process model to edit.

Conduct SEAD Phase model is now open and ready to insert information in the consistent format that is presented by the FDP-KAT. The SME sees the major headings of the model on tabs with entry forms below each tab. The tabs start with description and end with the notes, a total of ten tabs, organized like the JSIMS style guide. The SME starts filling assumptions in the

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FDP KAT

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block provided while formatting is managed by the FDP-KAT. Next is the description of the process, from the physical attack to the electronic warfare attack. The SME fills in the data entry forms, from left to right on the tabs, including the process inputs and outputs. As he fills in the information he selects from numerous drop-down lists. Examples of drop-down lists include Data Sources, Information ID and Source Entity ID, just to name a few. These drop-down lists enable the SME to define relationships between model elements in the database. The drop-down lists also reduce redundant input and provide more consistent input. After he completes the model of Conduct SEAD Phase, he saves the model to the database.

Upon completing the Conduct SEAD Phase model, the SME returns to the Overview interface. From the Overview interface, the Edit Objects option gives the SME four types of objects: communication network, equipment, information and organization. The SME proceeds to define those objects by double clicking on the Edit Objects option. This process continues until the SME completes all processes, objects, and interactions in the Conduct SEAD Phase model.

The FDP-KAT provides several ways of deploying completed models. Models can be published automatically as Microsoft Word Documents in the JSIMS FDP format. Models can be exported as a CMMS-DRIS DIF XML file and uploaded to the CMMS Common Library for distribution and analysis. Alternatively, the entire database (Microsoft Access) can be shared with others.

The FDP-KAT provides a practical means of capturing complex data models and provides several ways of deploying the captured models. It is available for evaluation by contacting the DMSO.

For more information

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KAT Compendium

<http://ORL01.DRC.COM/KAT>

Release of newest version of UOB data access tool set for March

By Mike Hopkins
DMSO UOB Project Manager

The announcement of the release of the Version 3.0 of the Unit Order of Battle Data Access Tool (UOB DAT) with many new and improved features, as well as additional data will be sent out via email to the current UOB DAT users in March.

UOB DAT users continue to grow. The latest organization to obtain the tool is the National Simulation Center Digital Integration Office under the direction of Mr. John Diem at Fort Hood, Texas.

Task organizing simplified

The UOB Toolset concept consists of three main components: a library of UOB authoritative data sources (UOB ADS), a data interchange format (UOB DIF) and the UOB DAT. The library of sources consists of foreign and U.S. Forces, classified and unclassified, and current and future force structures. UOB sources are maintained by the owning organizations and made available to the UOB DAT in their native formats to the maximum extent possible. The data access tool features a graphical interface that allows users to retrieve and browse order of battle (OB) data and associated information, and select individual units easily and quickly across distributed networks. Selected units can be task organized and aggregated/deaggregated to desired unit levels. Unit attributes can be edited and used as start up data in models, simulations and operational, planning, training and execution systems. The data interchange format presents UOB information from all library sources in a single, understandable, consistent, standard format readily available over distributed networks. The DIF is based on DoD standards and users can depend on this standard format for obtaining UOB for their interfaces to models, simulations and other planning, training and acquisition systems.

User advocate activities

As highlighted in previous DMSO News articles on the UOB Toolset there is a much larger potential audience for the toolset beyond the existing proponents in the modeling and simulation (M&S) community. The Fiscal Year 2000 deployment strategy for the UOB Toolset thus begins to introduce the tools to the wider military operational community through the Joint Professional Military Education System and the Service-equivalent educational programs. Past analysis work has involved examining the curricula of the Army's School for Advanced Military Studies and the Command and General Staff College at Fort Leavenworth, Kan., and the Marine Corps' Command and Staff Course at Quantico, Va. Numerous opportunities have been identified in operational planning courses for a robust, authoritative UOB Toolset.

With the upcoming introduction of Version 3.0 of the UOB Toolset and the expansion of generic force databases for unclassified use, the objective is to introduce the tools into selected advanced studies for Academic Year 2000-2001. The goal will be to develop metrics on the value added in using the UOB Toolset over traditional OB formulation methods. Then, further adjustments can be made to the UOB Toolset and underlying data bases as required with the view toward a full introduction of the toolset into the student populations of all Army and Marine Corps schools. Ultimately, students will carry the UOB Toolset with them as they return to operational units.

For more information

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ADS offers one-stop knowledge shopping

By Mike Hopkins
DMSO ADS Project Manager

Have you ever had the dilemma of having to find a credible source of knowledge to support a model development or to populate a model database for a specific application? Those of you who have, know the time expended in these type efforts is substantial. The Defense Modeling and Simulation Office

(DMSO)-sponsored data source cataloging effort has provided the DoD modeling and simulation (M&S) community with a knowledge acquisition (KA) resource that expedites these efforts across the spectrum of M&S use.

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New program reflects increased emphasis on integrated natural environment technologies for M&S

By John Hughes
DMSO INE Program

The Integrated Natural Environment (INE) Program is a new organization at the Defense Modeling and Simulation Office (DMSO), reflecting the increased emphasis the DMSO is placing on the development of integrated natural environmental representation technologies for modeling and simulation (M&S) applications.

The INE Program focuses on providing integrated authoritative representations of the atmosphere, space, oceans and terrain to the M&S community that will improve consistency and interoperability. A fundamental long-term technical objective of the INE Program is the implementation of the INE Strategy through the development of technologies and end-to-end proof-of-concept demonstrations. This article will provide a brief introduction to the INE program and its component projects.

The long-term goal of the INE Strategy, and therefore by extension the INE Program, is to enable the automated generation of an integrated natural environmental representation that is internally consistent, cost effective, authoritative and meets the requirements of the M&S developer/customer. At the heart of the INE Strategy is the concept that an infrastructure of common services, scenario-generation capabilities and interchange mechanisms can be standardized to produce integrated authoritative representations (ARs) of the natural environment.

The INE Program has six projects underway that are making significant contributions to developing the functional capability required to support the INE Strategy: Master Environmental Library (MEL); Environmental Scenario Generator (ESG); Synthetic Environment Data Representation and Interchange Specification (SEDRIS); Environmental Books on the Shelf (EBS); Requirements/Common Data Model; and Integration Experiments (IE).

The MEL facilitates discovery, access, subscription and delivery of authoritative environmental information, products and data to supply models and simulations for training, analysis and acquisition through a single user interface to numerous DoD and non-DoD resource sites. The MEL promotes interoperability among simulation users by facilitating common usage of environmental information, products and data. Several Uniformed Service projects deliver only one type of environmental data to only one Service, but MEL transcends the boundaries between the various Services and the four environmental domains -- air, space, ocean and terrain.

The ability to model highly realistic representations of the environment exists today, but the ability to properly define a scenario that meets the requirements of a given simulation while still maintaining inter- and intra-domain consistency has not yet been developed. The Environmental Scenario Generator (ESG) will automate the generation of logically integrated and physically consistent representations of the natural environment through the use of the

data and modeling resources available in the MEL. The ESG provides the ability to locate desired environmental conditions in historical data archives, and then orchestrate the production of scenario databases based on those events.

The DoD community needs an environmental data representation and interchange mechanism that not only satisfies the requirements of today's systems, but can be extended to meet future data sharing needs. The SEDRIS project was established to solve the following pre-runtime M&S data interchange problems associated with representation of the physical environment: no standard data model; limited support to heterogeneous simulation; indeterminate interchange mechanism; and expensive data base conversion.

The SEDRIS provides the exchange specification suite that supports the INE Strategy. While initially focused on meeting the needs of the M&S community, addressing the above issues, the SEDRIS also addresses related interchange and reuse issues encountered by database producers and operational consumers of the larger community. Additionally, the unambiguous definition characteristics of the data representation model, data dictionary and data coding specification support runtime use in building simulation and federation object models under the High Level Architecture.

The Environmental Books on the Shelf (EBS) project supports the INE Strategy by demonstrating and promulgating both MEL-accessible/SEDRIS-available worldwide low-resolution terrain databases, and associated terrain database development technology capable of meeting both low- and medium-to-high resolution constructive and virtual simulation requirements. The developed worldwide low-resolution terrain datasets include separate archives of "cleaned and deconflicted" feature data, elevation data and 3D models/textures, as well as an additional archive of integrated feature, elevation and 3D model/texture data as an integrated Triangulated Irregular Network (iTIN). These datasets are based on a well-documented Terrain Common Data Model (TCDM) that uses SEDRIS technology components.

One of the major functions of the DoD environmental Modeling and Simulation Executive Agents (MSEAs) is to bridge the M&S communities with the DoD and other environmental data producers by developing an understanding of the environmental data requirements of M&S users and represent these to the data producers. Over the past few years, efforts have been made by the environmental MSEAS to accomplish this. The Requirement/Common Data Model (RDCM) effort builds on the approach initiated by the Joint Simulation System (JSIMS) to define terrain data needs. As part of the JSIMS program, the Army's Warfighters Simulation 2000 (WARSIM) program has taken on the responsibility for the synthetic natural environment representation. In this role they have developed the Terrain Common Data Model (TCDM) which articulates the data

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145 GB of data MEL processes 50,000 orders for data in one-year period to meet Navy requirements

By Juan Perez
INE Program Manager

During the period February 1999 to February 2000, the Master Environmental Library (MEL), the Environmental Node of the Modeling and Simulation Resource Repository (MSRR), processed 50,000 orders for data from the Naval Research Laboratory's (NRL) Monterey (Ca.) Resource Site, one of several resource sites in the MEL system.

The MEL is widely used by military, government, educational, commercial and personal users to meet their environmental data requirements. Many users are interested in archived data, which few operational systems provide. The 50,000 orders amount to more than 145 GB of data delivered to the community. This data was primarily Gridded Binary (GRIB) meteorological and oceanographic data supplied to the NRL from the Fleet Numerical Meteorology and Oceanography Center (FNMOC), and satellite data from NRL, Monterey.

The MEL is used in a variety of ways:

- *In the military* -- The MEL is being used to provide Geophysical Fluid Dynamics Laboratory Navy Version (GFDN) gridded fields for the Systematic Approach Forecasting Aid, an expert-system-based program to aid the Typhoon Duty Officer in developing Typhoon forecasts based on the Naval Post Graduate School (NPS) Systematic and Integrated Approach to Typhoon Forecasting.

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needs of the JSIMS users in a form that drives both the data production for scenario development and the runtime representation of environmental effects. The TCDM includes the terrain data needs for joint constructive high-level warfare training. The RCDM effort will build on the experience with the TCDM to both generalize this data model and apply the concept to the other environmental domains in a cooperative effort with the environmental MSEAs.

The majority of the effort discussed to this point has focused on the development of technologies to support the implementation of the INE Strategy and its various components. The Integration Experiment (IE) project of the INE Program will put the components together by executing a proof-of-concept end-to-end demonstration. The IE phases include: 1) a walkthrough "paper" exercise to evaluate the INE concept of operations in the context of a robust, realistic INE scenario and 2) a "live" test or end-to-end experiment to produce an integrated dataset for a real M&S application.

The development of integrated natural environmental representation technologies continues to be a focus of the DMSO program. The INE Program will develop and demonstrate the technologies required to implement the INE Strategy using a philosophy of phased technology development culminating in periodic proof-of-concept end-to-end demonstrations.

A technical paper on this topic was accepted for presentation during the Spring Simulation Interoperability Workshop (SIW) in Orlando, March 27-31. It will be presented during the Simulated Natural Environment Forum.

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- *In the government* -- Analyses and model output from the MEL are used to investigate climate history. Basin-scale General Circulation Model (GCM) ocean models use MEL data for forcing fields and boundary conditions.

- *In educational research* -- Ten-meter wind forecasts received from the MEL system are being used to develop better real-time wind-wave forecasting capabilities along the California coastline.

- *For personal use* -- Satellite images from the MEL are put together into loops for personal weather forecasting. During the active hurricane season, stills and loops are put on the Internet. This Internet site is used for learning about HTML protocol and web site design.

The MEL is a key component of the Defense Modeling and Simulation Office (DMSO) Integrated Natural Environment (INE) Program, providing the capability to discover and deliver data through a web-based interface.

For more information on the MEL project visit <http://mel.dmsomil/>.

MSRR adds JADS JTF documents to repository of 750+ resources

By Gary Misch
MSRR Project Lead

The Defense Modeling and Simulation Office's (DMSO) Modeling and Simulation Resource Repository (MSRR) is now the repository for Joint Advanced Distributed Simulation Joint Test Force (JADS JTF) documents. JADS documents are located at <http://www.msrr.dmsomil/jads/>, and can be found under "special collections" on the MSRR site map. These documents and lessons learned will continue to be available after the JADS-JTF is disestablished.

The DMSO repository contains information on over 750 modeling and simulation (M&S) related resources. Additionally, the MSRR "Ultraseek" engine has indexed 100,000 M&S-specific links on the Internet.

The MSRR is a service of the Modeling and Simulation Information Analysis Center (MSIAC). Users who are unable to solve their problems directly online may readily get in-person help via the MSIAC Help Desk.

In the near future, users of the DMSO, tri-service, and Ballistic Missile Defense Organization (BMDO) repositories will be able to conduct a search across those systems.

In order to ensure that DoD users remain aware of all models and simulations of potential use to the department, the DMSO system will now list commercially available M&S resources. Commercial listings may not contain promotional information. MSIAC analysts may create MSRR entries with descriptive information similar to that provided for government-developed resources.

For more information contact Gary Misch, (703) 933-3327, gj@msiac.dmsomil. The DMSO point of contact is Navy Capt. (Select) David Johnson, (703) 998-0660, djohnson@dmsomil.

M&S Awards

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There were 69 government and 19 non-government nominees. Here are the numbers broken out by category:

- *Training* -- Government (16), Non-government (4)
- *Analysis* -- Government (13), Non-government (2)
- *Acquisition* -- Government (11), Non-government (2)
- *Cross-Functional* -- Government (29), Non-government (11)

Nominations in the functional areas were reviewed by awards boards established by the corresponding functional area councils of the DoD's Executive Council for M&S (EXCIMS). A select subcommittee of the M&S Working Group (MSWG) also reviewed nominations in the cross-functional area. To ensure an equitable representation in the non-government sector, selected members of the M&S Industry Steering Group (ISG) participated in the selection process. Finally, the EXCIMS, chaired by, Dr. Delores M. Etter, Deputy Director for Defense Research and Engineering, will review the various groups' recommendations for approval of the awards.



There were 86 nominations for last year's competition.

For more information about the awards program visit the DMSO Web site at <http://www.dmsomil/awards/> or contact:

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DMSO leader changes

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versity. He has served in a variety of command and staff positions in the 101st Airborne Division at Fort Campbell, Ky., and 3rd Armored Division in Germany; as a tactics instructor and Operations Research Systems Analyst (ORSA) in the Infantry School at Fort Benning, Ga.; as a Mechanized Infantry Battalion Task Force Operations Officer in the 1st Cavalry Division during the Gulf War; as aide-de-camp for the Commander-in-Chief of U.S. Forces Command at Fort McPherson, Ga.; and as an ORSA and Division Chief of Operational Capabilities Assessment (Southwest Asia) at the Center for Army Analysis. Before joining the DMSO Crain deployed again with the 1st Cavalry Division as Chief of Strategic Plans for the Multi National Division (North) in Tuzla, Bosnia.

Johnson, a Frostburg State University graduate, received his Navy commission through Aviation Officer Candidate School in 1980. He has served in a variety of aviation and shipboard assignments, to include Executive Officer of Patrol Squadron Eleven (VP-11) where he participated in operations over Bosnia and Herzegovina. After a year as Executive Officer of VP-10 "Red Lancers" he became the squadron's 61st commander. He has 3,500 pilot hours in the P-3 aircraft and has been instructor pilot in five squadrons. He graduated from the National War College in June with a master's degree in National Security Strategy.

As Chief Scientist, Dahmann served as the principal scientific and technical advisor to the DMSO Director. Her primary effort has been the realization of the Defense Department's goal to establish a High Level Architecture (HLA) for M&S. The HLA is the cornerstone of the DMSO's broader effort to develop a Common Technical Framework for M&S. The CTF will facilitate the interoperability of all types of mod-

els and simulations, among themselves and with other communications systems, as well as provide a means for the cost-saving reuse of M&S components. She was both the driving force and the stabilizing influence for the HLA project through its developmental and transitional stages and was fully engaged in its implementation. She turned the program management of the HLA over to Phil Zimmerman on October 1. The HLA and other programs for which Dahmann had oversight responsibility will continue.

A copy of the Etter memo is available online at http://www.dmsomil/incoming/news_releases/dmsomil_director.pdf.

We've changed our @address slightly

The Defense Modeling and Simulation Office (DMSO) changed its e-mail server on January 14 to comply with Department of Defense requirements. As a result we dropped the "msis" from our e-mail addresses.

For example, prior to the change if you were writing to ASK_DMSO the e-mail address would have been ASK_DMSO@msis.dmsomil. Now it's ASK_DMSO@dmsomil.

If you have addresses for DMSO personnel in your e-mail address book, delete the "msis" server. It's a small change, but could save you getting an error message.