



**WELCOME TO THE DECEMBER 2012 EDITION** of the M&S Newsletter, the first issue of the Newsletter published by the Modeling and Simulation Coordination Office (M&SCO). We are excited about this transition and will continue to provide the latest in a variety of M&S articles from the communities enabled by M&S within the Department of Defense and beyond, plus a calendar of special M&S events.

We have also added a new "Featured High Level Task" section. A High Level Task is a DoD-funded technology project that will enhance the application of M&S throughout the Department for the benefit of our Warfighters. This issue of the Newsletter features the "Environmental Data Cube Support System (EDCSS)."

Please note that the full articles are available through the links provided. As always, we hope you enjoy this issue and welcome your comments.

—M&S Newsletter Staff

## Climate Models Project Increase in U.S. Wildfire Risk



**SCIENTISTS USING NASA SATELLITE DATA AND CLIMATE MODELS** have projected drier conditions likely will cause increased fire activity across the United States in coming decades. Other findings about U.S. wildfires, including their amount of carbon emissions and how the length and strength of fire seasons are expected to change under future climate conditions, were also presented Tuesday at the annual meeting of the American Geophysical Union in San Francisco.

—Article continued on page two

### In This Issue

MODELS PROJECT U.S. WILDFIRE RISK



AUGMENTED REALITY COMING SOON



ARMY LVC TOOL



VIRTUAL CLEARANCE TRAINING



MEDICAL FIRST RESPONDER SIMULATION



M&S CURRICULUM FOR HIGH SCHOOL



VIRTUAL BATTLESPACE 2 SIMULATOR



SIMULATOR PROVIDES SHOOT, NO SHOOT DECISION TRAINING



FEATURED HIGH LEVEL TASK



M&S WHAT & WHEN



## Models Project U.S. Wildfire Risk

—continued from page one—

Doug Morton of NASA's Goddard Space Flight Center in Greenbelt, Md., presented the new analysis of future U.S. fire activity. The analysis was based on current fire trends and predicted greenhouse gas emissions.

"Climate models project an increase in fire risk across the U.S. by 2050, based on a trend toward drier conditions that favor fire activity and an increase in the frequency of extreme events," Morton said.

The analysis by Morton and colleagues used climate projections, prepared for the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change, to examine how dryness, and therefore fire activity, is expected to change.

The researchers calculated results for low and high greenhouse gas emissions scenarios. In both cases, results suggest more fire seasons that are longer and stronger across all regions of the U.S. in the next 30-50 years. Specifically, high fire years like 2012 would likely occur two to four times per decade by mid-century, instead of once per decade under current climate conditions.

Through August of this year, the U.S. burned area topped 2.5 million hectares (6.17 million acres), according to a fire emissions database that incorporates burned area estimates produced from observations by the Moderate Resolution Imaging Spectroradiometer instruments on NASA's Aqua and Terra satellites. That is short of the record 3.2 million hectares (7.90 million acres) burned in 2011, but exceeds the area burned during 12 of the 15 years since record keeping began in 1997. This and other satellite records, along with more refined climate and emissions models, are allowing scientists to tease out new information about fire trends.

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*This article originally appeared on the NASA Goddard Space Center website. For the complete article, [click here](#).*



## AR Systems Give Real World a Digital Layer

**AUGMENTED REALITY IS COMING SOON.** We're already salivating over Google's Project Glass eyewear, which allows directions, facts and markers to materialize before our eyes as we gaze around urban landscapes. It feels like becoming the hero of a sci-fi movie.

To the military, augmented reality holds tantalizing promise for operations and training alike. Rather than creating virtual environments, which place users in completely fake (though often realistic) environments, augmented systems overlay information on the actual scene before users' eyes. In theater, AR goggles might add information about targets or the surrounding area; in training, they would allow all manner of threatening or nonthreatening elements to be inserted into a real landscape.

"AR has the potential to be more of a game-changing application than even virtual task training in performance support, because there is more of a real-time, dynamic, on-the-fly solution, where you're getting the latest information as you need it," said Josie Sutcliffe, the vice president of marketing for 3-D model and maintenance training company **Ngrain**.

The challenge for the many companies working on augmented devices, besides miniaturizing the technology, is deciding what content to include. Incorporating useful information cleanly into a visual system isn't easy when you are trying to cover all aspects of daily human life. AR designed for the specific goal of training, on the other hand, is within closer reach.

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*This article originally appeared on Defense News at <http://www.defensenews.com>. For complete article, [click here](#).*

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## Army Puts LVC Tool Through Paces

**SEVERAL U.S. ARMY POSTS WILL GET A NEW TOOL** that combines live, virtual and constructive (LVC) training if leaders at the National Simulation Center at Fort Leavenworth, Kansas, are satisfied with the first field test.

Dubbed the Integrated Training Environment (ITE), the new tool was put through its paces Sept. 10-28 by some 600 soldiers from the Black Jack Brigade at their home station of Fort Hood, Texas. The first two weeks included setup and preliminary tests, while the final week brought all the components together in a live exercise.

Lt. Col. Shane Cipolla, a project lead at the National Simulation Center who is evaluating the system, said the exercise has gone well and all signs suggest leaders will approve the ITE.

“Everything is pointing to that, yes,” Cipolla said.

The ITE links multiple simulators and live players so they can interact in a seemingly expansive exercise. In the live portion, soldiers engage in battles while wearing high-tech laser tag systems that send geo-referenced data back to a central control point, tracking when and where people shoot or get shot.

The virtual portion includes various simulators, such as the Aviation Combined Arms Tactical Trainer, a helicopter simulator; and the Close Combat Tactical Trainer, which simulates tanks.

The constructive training components, where soldiers control computer-generated forces, combine with the live and virtual data at a central command point. Commanders can then make decisions based on all of the amassed

information — and the various LVC components will be indistinguishable from one another.

The ITE, if approved, will mark a big step forward for LVC. While such training is currently possible, it is often done in one-off scenarios at individual locations.

“Today, it takes a tremendous amount of time and effort to bring in the technical engineering staff to be able to integrate those systems,” said Col. John Janiszewski,

Army Training and Doctrine Command’s capability manager for the ITE.

The big difference is the ITE’s use of the Live, Virtual, Constructive Integrating Architecture (LVC-IA), a set of design standards by prime contractor Cole Engineering Services that makes communication between the various simulations easier and faster.

*This article originally appeared on the Training Simulation Journal (TSJ) website. For complete article, [click here](#).*



*The Homestation Instrumentation Training System sends geo-referenced data to a central control point, tracking when and where soldiers shoot or get shot.*



## Virtual Clearance Training Suite Teaches Soldiers to Fight IEDs in Safe Environment

A VIRTUAL CLEARANCE TRAINING SUITE ARRIVED on Fort Leonard Wood in August, which marked the third fielding of these training systems.

The Virtual Clearance Training Suite, or VCTS, is designed to train Soldiers for route clearance missions as well as counter-improvised explosive device, or IED, and mounted maneuver operations in a virtual environment and contains simulators for the Mine Protected Clearance Vehicle “Buffalo,” Vehicular Mounted Mine Detector “Husky” with the Mine Detonation Trailer, Medium Mine Protected Vehicle RG-31 or RG-33 “Panther,” and the Man Transportable Robotic System.

Soldiers of the 235th Engineer (SAPPER) Company from Petaluma, Ca., and 848th Engineer (SAPPER) Company from Garden City, Ga., were the first Soldiers to benefit from the new equipment.

Spc. Wayne Preciado, 848th Eng. Co., said this is his second time to use VCTS equipment in preparation for a deployment.

“I think this training is very beneficial, especially going back the second time. We are getting more details,” Preciado said. “I have been on the Buffalo and I told the guys ‘I am waiting to hear something new, I want to learn something I didn’t catch the first time,’ and I did.”

Staff Sgt. Otis Petty, R2C2 Course noncommissioned officer-in-charge, has deployed four times, and said with his knowledge of the VCTS and deployment experience, he thinks this training is imperative for new Soldiers.

“They need to understand, this is what they might see,

this is what they might encounter,” Petty said. “These are the vehicles you might be riding in and sometimes the day and missions are going to be long. You just have to be mentally prepared because route clearance is not a process where you can drive on the road like you are on I-44 going to St. Louis. It takes time -- it’s a long tedious process.”

Preciado agreed.

“Getting this type of training, especially if you are a new Soldier is going to open up your eyes and imagination and thoughts,” he said. “You are young and fresh and you want to see stuff before you get down range. You want to put your hands on it and touch it. If you don’t practice it, it won’t become natural and then you are going to have a bad take downrange.”

Joseph Clarke, site lead and training facilitator, said he believes the VCTS will save Soldiers’ lives because it allows them to train and become familiar with the equipment they will be operating downrange.

“It gets the Soldiers familiar with the inside of the vehicle,” Clarke said. “These simulators are exactly replicated to the real vehicle down to the buttons, everything is functional. So, if something says spotlight, you will be able to see a spotlight through your window. It’s familiarity.”

*This article originally appeared on the U.S. Army website. For the complete article, [click here](#).*





## New Technology Heightens Pediatric Code Blue Response Training at Naval Hospital Bremerton

**NAVAL HOSPITAL BREMERTON'S (NHB)** Staff Education Training Department (SETD) implemented new simulation training technology during a "Code Blue" CPR drill with Pediatrics Department to further hone the first responder skills of staff doctors, nurses and hospital corpsmen Oct. 11.

"For this pediatric event we used a state of the art mannequin for the first time at our facility. You can feel a pulse, listen to lungs sounds, talk to, and many other things with it," said Hospital Corpsman 3rd Class Blake Hite, of NHB's SETD and drill organizer who arranged the new training tools to be implemented.

"This type of training is completely essential. We typically see well children here in Pediatrics. It's easy to become complacent. But we have to be able to recognize any situation and symptom in any child because kids can decompress quickly and require immediate intervention," said Lt. Lindsay McQuade, NHB Pediatric Clinic division officer.

According to Hite, holding training like this is a direct result of bringing many departments - from Pediatrics to Family Medicine to Emergency to Security and others - in the hospital together to effectively respond to a code. "This helps our ability to effectively respond to life threatening emergencies. This training keeps staff skills sharp. We do not see as many real Code Blues as in a larger facility, so it is imperative that we practice these skills in case a real situation arises. We hold the training once to twice a month in various places and at random times throughout the hospital," he said.

Utilizing the newer training tools, attests Hite, helps make the training much more realistic.

"Everyone involved will ultimately feel almost exactly like they would in a real situation. The high tech, portable equipment lets SETD simulate many different types of medical emergencies that provides essential teaching and training opportunities," Hite explained.

McQuade notes that using the new mannequin simulator to practice treating CPR for a child provides valuable reinforcement of implementing proper procedure for a pediatric-centric emergency.

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*This article originally appeared on the U.S. Navy website. For the complete article, [click here](#).*



## NCS Introduces High School Modeling and Simulation

**THE NATIONAL CENTER FOR SIMULATION (NCS)** unveiled a Modeling and Simulation (M&S) curriculum for high school students this week at the 2012 Interservice/ Industry Training, Simulation and Education Conference (IITSEC). The four-year curriculum was developed for high school students to learn and gain expertise in the field of M&S. Building on the initial work accomplished by Old Dominion University; the NCS Curriculum Development Team of industry, academia and government constructed a curriculum that covers all aspects of M&S. The curriculum includes a variety of classroom instructional activities.

The team worked in conjunction with the Florida Department of Education and both Orange and Seminole County Public Schools to ensure adherence to educational standards. A curriculum framework, required by State of Florida for full implementation of the program, is in final coordination at this time, but teachers can use portions of the curriculum to meet their needs now. In the future, a standardized exam will be implemented for students to pass and receive a certification in the M&S field.

Hank Okraski, NCS Education and Workforce Development Committee Chair, led the team of teachers, industry representatives and government participants in developing the curriculum. "We are very pleased to release the first modeling and simulation curriculum for Florida high schools," said Okraski. "But our journey doesn't end here. It is only a beginning as we begin to implement the curriculum and stimulate the young minds of our students to imagine the possibilities of using simulation this early in their careers. The history of modeling and simulation in the state of Florida is very rich - and with these steps, we hope to ensure an even brighter future."

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*This article originally appeared on the Halldale Group website. For the complete article, [click here](#).*





## Fort Jackson Training New Soldiers with Virtual Battlespace 2 Simulator



*The computer program Virtual Battlespace 2, screenshot above, is the focus of a 10-week pilot program for Soldiers in Basic Combat Training.*

**FORT JACKSON BATTALION IS PILOTING A NEW TRAINING TOOL** that will look familiar to many new Soldiers.

Virtual Battlespace 2, or VBS2, offers battlefield simulations that allow instructors to create new scenarios and engage the simulation from multiple viewpoints. The squad-management system enables participants to issue orders to squad members.

In other words, it works like a video game. VBS2 is descended from a game called Operation Flashpoint, which was launched about 10 years ago, said Capt. J.R. Wagner, of the 2nd Battalion, 39th Infantry Regiment.

“It was a simulation used by groups of people who could network computers together,” Wagner said. “You could move as a member of a team or a squad, and VBS2 is the third iteration. Currently, we’re fielding it for Basic Combat Training, or BCT, Soldiers. This is the first fielding I know of for any Basic Combat Training unit.”

VBS2 is essentially a video game, but one structured to teach skills new Soldiers learn in BCT. The program includes realistic, customizable settings that walk Soldiers through land navigation exercises, combat scenarios and group strategies.

“It’s a great tool and I think it’s going to do wonders for our training,” said Maj. Damasio Davila, executive officer of the 2-39th.

Drill sergeants can set up different scenarios within the virtual training area and can function in administrative roles as Soldiers learn the fundamentals of combat.

“The idea is not to replace the drill sergeant with a computer,” said Lt. Col. J.C. Glick, battalion commander.

“The idea is not to replace going out and doing land navigation with a computer. The idea is that drill sergeants will be able to focus on refining their learning objectives. When new Soldiers go out to the woods, the time they spend there is more productive because they’ve done the homework and other requirements in a controlled environment.”

The program has been available at Fort Jackson for almost a decade, Wagner said, but has not been used by BCT instructors until recently. The U.S. Army Chaplain Center and School has used VBS2 for preliminary land navigation training, which uses a virtual recreation of another Army post for its primary environment.

*This article originally appeared on the United States Army website. For the complete article, [click here](#).*



## Virtual Simulator Provides Alternative Shoot, No-Shoot Training

**THE 51<sup>ST</sup> SECURITY FORCES SQUADRON OFFERS A DIFFERENT WAY** to engage in a shoot or no-shoot scenario at Osan Air Base, Republic of Korea.

The Engagement Skills Trainer 2000 is a virtual firearms simulator that uses life-like, life-size weapons to practice marksmanship skills and engage in real-world type scenarios. The shoot or no-shoot scenarios allow participants to verbally engage for practice in deescalating the situation, explained Airman 1st Class Stephen Wood, 51st Security Forces Squadron Combat Readiness Course instructor.

“A shoot, no-shoot scenario is a scenario in which you arrive on scene and you have to make the decision of what level of force is necessary per the use of force regulations,” Wood said. “Depending on what actions the suspect in the simulator takes the security forces members decides whether or not he is authorized to shoot or not, then the EST operator will go over the scenario with the security forces member and have them justify why they used the level of force they chose and how they handled the scenario.”

The trainer is an alternative to the actual range and gives a life-like approach to different scenarios such as domestic



*(Left to Right) Staff Sgt. Scott Stoffel, Tech. Sgt. Michael Dove, and Senior Airman Rafael Walden work through an attack scenario with the 51st Security Forces Squadron's Engagement Skills Trainer 2000 at Osan Air Base, Republic of Korea, Oct. 4, 2012. The group went through several scenarios on a virtual trainer that allowed them to differentiate between hostile and non-hostile forces. Stoffel, Dove and Walden are 51st Civil Engineer Squadron Explosive Ordnance Disposal technicians.*



*Staff Sgt. Timothy Dent (sitting) and Staff Sgt. Perry Vitali, 51st Security Forces Squadron Combat Readiness Course instructors, run the Engagement Skills Trainer 2000 at Osan Air Base, Republic of Korea, Oct. 4, 2012. The trainer provides virtual shoot or no-shoot scenarios to help Airmen differentiate between hostile and non-hostile forces in combat situations.*

disputes and base exchange hold ups.

“In all the scenarios you are dealing with a person or people who are disgruntled and the security forces member is supposed to use verbal judo to get an understanding of the situation at hand and deescalate it; however, the EST 2000 operator can choose to escalate the situation at which time the security forces member needs to respond accordingly,” Wood said.

The trainer incorporates several weapons such as the M-240 machine gun, M-4 rifle and M-9 pistol for virtual training scenarios that allow Airmen to differentiate between hostile and non-hostile forces in a combat situation. It also allows security forces Airmen to satisfy training requirements for use-of-force and alleviates ammunition costs on base, said Staff Sgt. Timothy Dent, 51st SFS CRC instructor.

The trainer is not used exclusively by security forces, however. A group of five 51st Civil Engineer Squadron Explosive Ordnance Disposal

technicians worked with the EST 2000 for exposure to situations they may encounter when in the field.

*This article originally appeared on the U.S. Air Force website. For complete article, [click here.](#)*





## FEATURED HIGH LEVEL TASK - EDCSS

High level tasks are special technology-related projects that will enhance the applications of M&S throughout the DoD for the benefit of our Warfighters. By focusing on the goals stated in the “Strategic Vision for DoD Modeling and Simulation,” these high level tasks are delivering solutions that will contribute to closing fundamental gaps in current M&S capabilities.

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### The Environmental Data Cube Support System (EDCSS)



**DEVELOPING REALISTIC ENVIRONMENTAL EFFECTS DATA FOR USE IN MODELING AND SIMULATION (M&S) APPLICATIONS** has traditionally been a complex and time-consuming process. The Environmental Data Cube Support System (EDCSS) is a production capability focused on generating products required to support M&S events performed by the seven DoD communities enabled by M&S. EDCSS is an excellent example of cooperation among government agencies to ensure the best resources available in support of the Enterprise’s M&S capabilities.

EDCSS addresses the integration across all environmental domains by constructing environmental representations from national authoritative source data providers like the Air Force Weather Agency, Naval Oceanographic Office, and National Geospatial-Intelligence Agency. Using its scenario search capabilities, EDCSS allows for the selection of realistic historical scenarios as the basis of the environment representation.

These data are used to generate a suite of products that support the simulation, control, and user domains. In addition to simulation-specific data sets, EDCSS delivers pre-computed environmental effects and system performance metrics; simulated operational products, such as satellite imagery, text observation reports, and forecaster products; and a wide range of graphic capabilities to support situational awareness within the control domain. EDCSS supports runtime distribution of products via the High Level Architecture standard and has a range of tools to facilitate effective use of these data by simulations and their supporting applications.

EDCSS is a joint project lead by the Air and Space Natural Environment Modeling and Simulation Executive Agent (MSEA), in coordination with the Ocean and Terrain MSEAs, to ensure an integrated environmental focus. EDCSS has been used to support major COCOM training events such as Terminal Fury and Austere Challenge and is the enabling technology for environmental representations used by the Air Force’s Distributed Mission Operations and Navy’s Fleet Synthetic Training programs.

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*EDCSS is an accurate and credible system to help support M&S events across the DoD Enterprise. Visit [www.msco.mil](http://www.msco.mil) for more info. For additional information visit <https://ine.aer.com/edc/> or contact the AF POC: Mr. Mark Webb, HQ USAF A3O-WX, M&S Integration & Requirements Lead, [Stephen.Webb@pentagon.af.mil](mailto:Stephen.Webb@pentagon.af.mil), 757-225-5483.*

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## M&S WHAT AND WHEN

### MODELING & SIMULATION CALENDAR OF EVENTS

#### 29<sup>th</sup> Annual Flight and Ground Vehicle Simulation Course

January 21 – 25, 2013  
Vestal, NY

#### 24<sup>th</sup> Annual SO/LIC Symposium & Exhibition

January 28 – 30, 2013  
Washington, DC

#### 2013 Powerplant Simulation Conference

January 28 – February 1, 2013  
Tampa, FL

#### 2013 Modeling & Simulation Congressional Caucus Leadership Summit and National Modeling & Simulation Coalition (NMSC) Annual Meeting

February 11 – 12, 2013  
Chesapeake, VA

#### NextMed/MMVR20

February 20 – 23, 2013  
San Diego, CA

#### 29<sup>th</sup> Annual National Test & Evaluation Conference & Displays

February 25 – 28, 2013  
Charlotte, NC

#### 2013 Pacific Operational Science and Technology Conference

March 5 – 8, 2013  
Honolulu, HI

#### DI2E Worldwide Training and Technology Demonstration

March 12 – 14, 2013  
Tampa, FL

#### 29<sup>th</sup> Annual National Logistics Conference and Exhibition

March 18 – 21, 2013  
Miami, FL

#### Joint Undersea Warfare Technology Spring Conference

March 18 – 21, 2013  
San Diego, CA



## THE M&S NEWSLETTER

The **M&S Newsletter** is a bi-monthly publication of the DoD Modeling and Simulation Coordination Office (M&SCO) that provides the most recent information concerning interesting M&S articles and a calendar of events for the M&S community.

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