Welcome to the May/June 2009 edition of the Modeling and Simulation Information Analysis Center (MSIAC) M&S Newsletter. This issue presents a variety of M&S articles and events from communities enabled by M&S within the Department of Defense and beyond. We hope you enjoy the May/June edition and look forward to your comments.

Although the wordings in the excerpts may not always correspond to official DoD usage, the full articles available through the links provide valuable insight into the applications of M&S technologies throughout the community.

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ISSUE SPOTLIGHTS

Joint wargame experiments

Shift in simulation superiority

iPods for training

Exercise Key Resolve 2009

New MRAP rollover trainers

Coalition combat simulations

Capitol Hill Modeling and Simulation Expo

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The following article on testing the Defense Department's Capstone Concept for Joint Operations (CCJO), originally appeared on DefenseLink.

EXPERIMENT TO EXAMINE JOINT OPERATIONS CONCEPT

SUFFOLK, Va., May 29, 2009 - More than 180 representatives from the U.S. military and other government agencies, as well as from foreign militaries, gathered in McLean, Va., from May 31 to June 5 for a war game to test the Defense Department's recently revised Capstone Concept for Joint Operations, or CCJO.

U.S. Joint Forces Command is leading the war game, the culminating event of an overall experiment that has included two previous workshops.

The CCJO, a document approved by Navy Adm. Mike Mullen, chairman of the Joint Chiefs of Staff, envisions how the joint force will respond to an array of future national security challenges in the 2016 to 2028 time frame.

The CCJO is a companion piece to the Joint Operating Environment, which describes future operational environments and challenges the joint force may encounter.

The CCJO describes how the joint force will operate to address those challenges, which include winning the nation's wars, deterring potential adversaries, developing cooperative security, defending the homeland, and responding to civil crises.

"The Capstone Concept for Joint Operations describes how the joint force will operate in an uncertain, complex and changing future characterized by persistent conflict," Mullen wrote in the document's introduction. "While the concept focuses on the future, many of its underlying concepts are timeless."

The war game is designed to explore the ideas in the CCJO using three different scenarios, each replicating possible key security challenges, organizers said.

"We have some very significant participation at the three- and four-star level, policy makers, former National Security Council members, former assistants to the president for homeland security, political and interagency participation -- very august crowd for a week-long war game," Navy Vice Adm. Robert S. Harward, Joint Forces Command's deputy commander, said. For the complete article from the U.S. Department of Defense, click here.

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The following article highlighting strengths and weaknesses in US high-end computer simulations relative to international counterparts, originally appeared on the National Science Foundation website.

SHIFT IN SIMULATION SUPERIORITY

Science and engineering are advancing rapidly in part due to ever more powerful computer simulations, yet the most advanced supercomputers require programming skills that all too few U.S. researchers possess. At the same time, affordable computers and committed national programs outside the U.S. are eroding American competitiveness in a number of simulation-driven fields.

These are some of the key findings in the International Assessment of Research and Development in Simulation-Based Engineering and Science, released on Apr. 22, 2009, by the World Technology Evaluation Center (WTEC).

"The startling news was how quickly our assumptions have to change," said Phillip Westmoreland, program director for combustion, fire and plasma systems at the National Science Foundation (NSF) and one of the sponsors of the report. "Because computer chip speeds aren't increasing, hundreds and thousands of chips are being ganged together, each one with many processors. New ways of programming are necessary."

Like other WTEC studies, this study was led by a team of leading researchers from a range of simulation science and engineering disciplines and involved site visits to research facilities around the world.

The nearly 400-page, multi-agency report highlights several areas in which the U.S. still maintains a competitive edge, including the development of novel algorithms, but also highlights endeavors that are increasingly driven by efforts in Europe or Asia, such as the creation and simulation of new materials from first principles.

"Some of the new high-powered computers are as common as gaming computers, so key breakthroughs and leadership could come from anywhere in the world," added Westmoreland.

"Last week's research-directions workshop brought together engineers and scientists from around the country, developing ideas that would keep the U.S. at the vanguard as we face these changes." For complete article from The National Science Foundation, click here.

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The following article about using iPods to support simulation-based training, originally appeared in the National Defense Magazine June issue.

TRAINING FOR WAR: A MULTIMEDIA EXPERIENCE

LITTLE ROCK AIR FORCE BASE, Ark. - Airmen who come here to learn how to fly C-130s may one day receive iPod touch devices with interactive software designed to acquaint them with the aircraft as they progress through their studies.

Just as training technologies for the newest fighter jets are going digital, so are those for one of the Air Force's oldest airplanes, the C-130 Hercules.

The use of iPods would mark a dramatic shift in the way the Air Force has traditionally prepared combat airlift crews for service. By incorporating more multimedia into training, it is addressing the needs of young airmen who learn differently than past generations.
"They're not going to pull out a stack of books and go through them with a highlighter. That's just not the way it's done with them," says Col.

C.K. Hyde, commander of the 314th Airlift Wing, which trains all C-130 operators from the U.S. military, along with crews from 34 allied nations. The wing graduates about 1,800 airlifters a year and accommodates an average of 400 students daily.

In part because of fiscal and operational constraints — including fuel costs, budget shortfalls and a deficit of aircraft as a result of the wars and aging — the service is mandating that training hours be moved off of the flight line and into simulations and other computer-based trainers. The initiative, known as reduced flying for initial qualification, or RFIQ, is resulting in an annual savings of 3,600 flight hours and $17.1 million here at the C-130 Center of Excellence.

“This RFIQ initiative has changed the way we do training,” says Shane Evans, senior program manager of the C-130E training at Lockheed Martin Corp., which holds the contract for training airlift pilots, navigators, flight engineers and loadmasters.

Wing Commander Hyde, whose grandfather helped to build C-130 aircraft on the assembly line in Marietta, Ga., points out that the wing is still flying some of those early planes today. “They don’t have a lot of flying hours left in them, so we’re maximizing those flying hours on what’s really important that we need to be doing in the aircraft, and doing everything else in the sim and in the device trainers,” he says.

Under the initiative, the amount of simulation time required for student pilots has increased to 149 hours from 101 hours, while the amount of time flying actual aircraft has decreased to 23 hours from 32 hours. For flight engineers in training, the amount of simulation time has nearly doubled, from 88 hours to 165 hours, while actual flying time in the aircraft has almost halved to 37 hours, down from 60 hours. For complete article from the National Defense Magazine, click here.

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The following article on Exercise KEY RESOLVE 2009, originally appeared on Air Force News Today.

AWSIM, ACE-IOS, CG, GIAC…what?

3/12/2009 - OSAN AIR BASE, Republic of Korea - The war-gaming floor of the Korea Air Simulation Center (KASC) was full of action for Exercise KEY RESOLVE 2009, and the U.S. and Republic of Korea participants behind the computers knew the acronyms, and weren’t afraid to use them.

Twice a year, during Joint Chiefs of Staff (JCS)-directed Exercises KEY RESOLVE and ULCHI FREEDOM GUARDIAN, well over 200 U.S. and ROK military, civilians and contractors augment the small staff of the KASC to run the US Air Force's Air and Space Cyber Constructive Environment (ASCCE) suite of models behind the exercise.

The ASCCE suite feeds more than 245 server and gamer workstations and countless warfighter systems, and boasts a sim reliability and availability exceeding 99 percent over the past six major Korea exercises.

It's the world's largest combat air simulation, and one of the few that integrates another country's models with US models, across land, sea and air domains.

To a member of the training audience, it looks real.

"The simulators and systems we have here at the KASC are specifically configured and continuously updated to stimulate the AOC's real-world systems," according to Scott Lovelace, KASC chief of simulations.

"Our goal is to be so realistic that the players forget they're in a simulation. We are the only sim center in the world lucky enough to be co-located with our primary training audience, and we go to great lengths to ensure we are providing quality training to the war fighter."

The KASC, with support from PACAF and in partnership with the Korea Battle Simulation Center at U.S. Army Garrison-Yongsan in Seoul, leverages the Joint Training and Experimentation Network and an expansive wide area network to distribute ASCCE within the Korea Peninsula and off peninsula to multiple command and control agencies and simulation centers in Japan and throughout the United States.

The backbone of these virtual and constructive models and simulations comes from the Air Force Modeling and Simulation Training Toolkit, the multiple and diverse capabilities of the Joint Information Operations Warfare Command, the Air Force Synthetic Environment for Reconnaissance and Surveillance, and Los Alamos National Laboratory.

While these models provide the backbone, the true strength of the KASC is the people who control the models, and the experience they bring to the Korea Theater of Operations.

The Air Force Agency for Modeling and Simulation, Electronic Systems Command and the developer teams collaborate with the KASC to provide this essential continuity. For complete article from Air Force News Today, click here.

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The following article on the new MRAP rollover trainers, originally appeared on Army News.

ARMY FIELDS NEW MRAP ROLLOVER TRAINERS

CAMP BUEHRING, Kuwait: The U.S. military is fielding a new vehicle rollover simulator to troops in Iraq and Afghanistan.

The simulator is the Mine-Resistant Ambush-Protected (MRAP) Egress Trainer, or MET, and is the military's latest initiative to prepare troops how to react in the event of a rollover.

According to Army statistics, there were 144 non-hostile-related MRAP rollover incidents in the military between Nov. 1, 2007 and Mar. 31, 2008. Since April 2007, the military has fielded approximately 12,000 MRAPS.

"The training was definitely beneficial," said Sgt. 1st Class Marlon L. Williamson, first sergeant with Headquarters Company, 49th Movement Control Battalion, after going through the training. "Hopefully all Soldiers will be able to go through this so they experience what it feels like to go through a rollover just in case they do become a part of one."

The MET consists of a vehicle cab mounted to two rotating wheels on a raised platform, and is based on an earlier humvee rollover trainer.

Unlike its predecessor, however, the MET comes in five variants for different MRAP models currently fielded by the military - the RG-33, RG-31, MaxxPro, Caiman and Cougar.

Although the MET system currently exists at only three locations - Camp Buehring and two camps in Afghanistan - this will soon change.

By the end of June, MET systems will spread to 20 locations, including 13 camps in Iraq and six in Afghanistan, said Bill Huggins, the project manager for Program Executive Office for Simulation, Training, and Instrumentation in Southwest Asia.

PEO-STRI is an Army agency responsible for developing and fielding new equipment.

Huggins said approximately half of the MET systems will be delivered to the 3d Sustainment Command (Expeditionary) in Iraq.

Future production models will be built with the ability to change out cabs to meet the training needs of troops at a given camp, Huggins said. For complete article from Army News, click here.

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The following article on simulating coalition forces in Afghanistan, originally appeared in National Defense Magazine July issue.

U.S., COALITION TROOPS TO REHEARSE FOR COMBAT IN SIMULATED AFGHAN WAR

KIRTLAND AIR FORCE BASE, N.M. — A high-tech combat simulation now in the planning stages will seek to achieve what eight years of real combat in Afghanistan apparently has not. And that is to teach U.S. forces how to fight with allies.

It's a long-standing annoyance for many in the U.S military that they don't get to train with allies before they deploy to war. They often meet their partners for the first time on the battlefield.

Maj. Michele Boyko, assistant director of operations for the 705th Combat Training Squadron, sums up the problem with a story from her experience flying in a B-1 bomber.

"The first time I had to work with the French was in Afghanistan, during an emergency close-air support situation with a controller on the ground," she says. "That was unsatisfactory. Why haven't we trained together?"

In September, she will direct the first-ever Coalition Virtual Flag exercise, a major step towards the groundbreaking virtual mission rehearsal in 2011.

"This event will be a huge mark on the wall for us," says Lt. Col. Troy Molendyke, commander of the 705th Combat Training Squadron that oversees the distributed mission operations center here. "We hope to establish this as a baseline and really use that as a steppingstone, because we see that as a huge growth area."

Virtual Flag exercises combine live and computer-based players in a simulated war. They allow "red teams" to test forces with real-life scenarios such as roadside bombs and ambushes.

Four Virtual Flag events are held annually with participation from units across the services that are preparing for deployments. On occasion, select units from allied nations have linked in to play. But, until now, the interaction between U.S. and coalition forces has been limited.

Coalition Virtual Flag will connect U.S. armed forces and their British, Canadian and Australian counterparts via simulators at their home bases or those located at the center, says Boyko, the exercise director.

Participating in its first Virtual Flag, the 612th Air and Space Operations Center at Davis-Monthan Air Force Base in Arizona will run the "war," which will span the southwestern United States. That location was selected because the coalition partners have databases that cover the Nellis ranges for their simulations, Molendyke says.

Canadian CF-18 pilots will fly in the game from simulators at their base in Shirley's Bay, Ottowa, while Australian F-18s and F/A-18s will participate from home stations in Williamtown and Canberra, respectively. F-2 Typhoons and Tornado GR4s from the Royal Air Force will join the virtual battle from Waddington, U.K.

The Australians and Canadians initially had requested training based on the current low-intensity conflict in Afghanistan. But the British wanted to practice major combat operations. "We're straddling between the two," says Boyko. "There will be a lot of close-air support, but we will also provide opportunity to do air-to-air and the air-to-ground war as well."

British crews will man the airborne warning and control system simulators at the distributed mission operations center while a U.S. airborne warning and control system crew will "fly" in the game from a simulator located at Tinker Air Force Base, Okla. For complete article from National Defense Magazine, click here.

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SAVE THE DATE! FOURTH ANNUAL CAPITOL HILL MODELING AND SIMULATION EXPO

This summer, top-notch M&S demonstrations from around the country will be brought to the nation's capital on July 15, 2009 at the Capitol Hill Modeling & Simulation Expo.

The Exhibition hours will be 10:00 AM to 3:00 PM. Members of the Congressional Modeling and Simulation Caucus, as well as representatives from the exhibiting corporations, will be on hand during the event. The Congressional Caucus is headed by Rep. Randy Forbes (VA-04) and Rep. Solomon Ortiz (TX-24). The Exhibition is sponsored by the National Training and Simulation Association, the national representative of the modeling and simulation community of practice.

For further information or to be considered as a presenter at this event, please contact Debbie Dyson of NTSA via ddyson@ndia.org or 703-247-9480.

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Please visit the MSIAC Calendar for a list of events taking place in the M&S Community.

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MSIAC M&S NEWSLETTER

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