



WELCOME TO THE JUNE 2013 EDITION of the M&S Newsletter. In this issue we present articles about missile simulation, medical treatment, virtual environments and modeling the sun.

Also included in this edition is a list of upcoming events within the M&S Community. We hope the June 2013 M&S Newsletter provides valuable insight into the world of Modeling and Simulation.

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

—M&S Newsletter Staff

Pilots Evade, Attack During Missile Simulation Training



Photo Credit: Lance Cpl. Ian McMahon

A “smokey” surface-to-air missile speeds off toward incoming helicopters during training on Ie Shima April 12. Smokey SAMs allow aviators to practice and improve evasive maneuvers they must take if targeted by a SAM. Marines with HMM-262 (Reinforced) participated in the training.

MARINE PILOTS WITH MARINE MEDIUM HELICOPTER SQUADRON 262 (Reinforced) participated in surface-to-air missile simulation training on Ie Shima April 12. The training allowed aviators from the squadron to practice and improve evasive maneuvers they would take if targeted by a SAM through the use of foam missiles known as “smokey SAMs.”

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Missile Simulation Training

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“When a SAM is launched, a pilot needs to know how to detect the threat and what reactions and countermeasures to take,” said Capt. Brett N. Bishop, naval aviation training operations, procedures and standardization officer for HMM-262 (Reinforced), 31st Marine Expeditionary Unit, III Marine Expeditionary Force. “The smokey SAM mimics the heat signatures given off by real SAMs without the danger of an actual threat. They are nicknamed smokey SAM because of the amount of smoke they produce when fired.”

Prior to the start of the training, the pilots received a briefing on the exercise. This period of instruction gave pilots time to plan for any change of events and ensure the safety of all personnel and equipment.

Finally, after hours of preparation and emplacing the SAM launch team, the helicopters took flight toward Ie Shima.

Five CH-46E Sea Knight helicopters, one UH-1Y Venom helicopter and one AH-1W Super Cobra helicopter made their way to Ie Shima. As they neared the island, Marines acting as the smokey SAM team launched their missiles, sending streaks of light and plumes of smoke toward the incoming aircraft.

“The helicopters use infrared sensors to detect the heat of the smokey SAM, so even if the pilots don’t see the launch, the aircraft senses it,” said Bishop. “After detection, it’s up to the pilots to react appropriately.”

As the CH-46Es dodged and egressed from the area, the UH-1Y and AH-1W flew in to begin simulated attack runs on the site.

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



Army Wants Sims to Handle More Users

THE U.S. ARMY WANTS VIRTUAL-WORLD and simulation technology capable of supporting at least five times the number of concurrent users than is possible today. To develop technology that can bring mass virtual exercises to life, the Army Research Laboratory’s Simulation and Training Technology Center is working with Intel Corp. in a cooperative research and development agreement.

ARL hopes the union will allow STTC and Intel to “collaborate and optimize research in virtual training environments,” according to a news release earlier today. Developers at Intel are working on technology that can scale up the level of users, interaction, realism and immersion. Partnering with STTC should give researchers a more direct connection to the soldiers that will eventually use that technology.

“It is our belief that virtual-world technology may be used to achieve the goal of full-spectrum operations during mission rehearsal exercises,” said Doug Maxwell, science and technology manager at the STTC. “This partnership is the first step to show that more than 1,000 users can operate in the same space and at the same time to achieve a realistic mission.”

The increased complexity of simulations and number of simultaneous users are expected to create more immersive training events in line with the goals of the U.S. Army Learning Concept for 2015.

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



Building a Virtual Continent

IT'S A TRAINING DREAM COME TRUE: an island with every kind of terrain you would ever need for practice exercises, tucked neatly away in the North Atlantic. This land mass exists only as a data set, but for simulators in need of realistic terrain or vector data, it's a place to call home.

Missionland, a product of the NMSG (NATO Modelling and Simulation Group), is an entire continent — 2,000 kilometers by 2,000 kilometers — of data designed to make consistent distributed training easier. Shared training exercises require that participants use the same data sets so that the virtual worlds match up. Many previous data sets were ill-suited for use by simulators across a coalition, either because they did not meet various requirements or because they included information that was difficult to share with other militaries. The fictional continent also avoids making a given country feel threatened because practice exercises are taking place using their geospecific data.

The project, which was developed between 2008 and 2012, produced real-world coordinates, maps, vector and elevation data, terrain texture, 3-D models, and imagery, all reusable and available to NATO partner nations. The data offers about 30 meters of resolution for most of the continent, although urban areas or areas of interest have even more detail.

The wide swath of available terrain includes coasts, mountains, desert, forests, cliffs, fjords, and a variety of different climate zones. There are also urban features, such as eastern and western cities, borders, roads, and airports. The data set focuses solely on static material, rather than on more dynamic features such as weather.

Because creating such data manually would have taken prohibitively long, researchers built a tool to blend in details of the real world. However, the real vector data now has different names and is not readily distinguishable.

While formal development of the data set ended at the close of 2012, Arno Gerretsen of the National Aerospace Laboratory said in an email that various organizations from the participating countries will add to it as they incorporate the dataset into their simulations.

“We expect more users of Missionland during this year,” said Gerretsen, who is a research and development engineer with the training, simulation and operator performance department. “It is also expected that once people are using the dataset, they will start to make (small) improvements to it, for example, by adding more detail to certain areas of the Missionland continent.”

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

M&SCO is the DoD point of contact for the NATO M&S Group; for more information on using Missionland, please contact M&SCO at Ask.MSCO@osd.mil.





212th Combat Support Hospital Soldiers Pull Together for Unique Training

UNDER A MOONLIT SKY, emergency medical helicopters from Company C, 1st Battalion, 214th Aviation Regiment, touched down at Miesau Army Depot and discharged moulage-covered role players onto the landing zone.

Medical Soldiers from the 212th Combat Support Hospital, or CSH, and Landstuhl Regional Medical Center, or LRMC, rushed out with litters to take the simulated patients into the waiting military ambulances.

The scene appeared pretty gory, as makeup artists had done their job to make the recent training exercise feel authentic.

“Moulage helps make it more real,” said Sgt. 1st Class Tanyanika Jones, a 212th CSH noncommissioned officer who oversaw the Soldiers from 30th Medical Command and other local units who volunteered for mock injuries made of latex and rubber covered in simulated blood.

“It adds to the shock and awe. When medics run up to the patient, they see the blood and guts hanging out,” Jones said. “If you’ve seen someone with moulage, it does mentally prepare you for what you would see on the battlefield.”

During the March 12 mass casualty drill, Company C’s UH-60 Blackhawk helicopters, known as “Dustoff,” airlifted



Photo Credit: Sgt. 1st Class Randall Jackson

Soldiers with the 212th Combat Support Hospital prepare a simulated casualty for surgery in the operating room during a field training exercise at Miesau, Germany, March 15, 2013. The OR is one of two in the 64-bed field hospital which is constructed of dozens of tents and specially designed metal containers.

30 simulated casualties from Landstuhl to Miesau. Soldiers from the Baumholder-based 421st Multifunctional Medical Battalion used field litter ambulances to transport them to the CSH where medical professionals assessed injuries and provided appropriate care.

The 10-day training exercise, designed to test 24-hour operations of the CSH’s portable field hospital, was slated for Hohenfels. But with

current fiscal considerations, the command decided to hold the exercise at Miesau, a U.S. Army Garrison Kaiserslautern installation.

“We saved maybe a hundred thousand dollars,” said Lt. Col. Stephen Linck, the 212th CSH’s assistant chief nurse. “We spent a very small amount on the professional make-up artists and the value that added was incredible.”

The 212th is comprised of nearly 200 medics, doctors, nurses and other support Soldiers, many of whom work at LRMC when not in the field. This training offers to build skills and increase proficiency.

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





Computer Simulation Shows the Sun's "Heartbeat" is Magnetic

A RESEARCH TEAM MADE UP OF PAUL CHARBONNEAU, a physicist with the University of Montreal and Piotr Smolarkiewicz, a weather scientist with the European Centre for Medium-Range Weather Forecasts in the U.K., has created a new kind of computer simulation of the sun's energy flow. In their Perspective article published in the journal *Science*, the two describe the solar engine deep within the sun as its "heartbeat" and suggest that it underlies virtually all solar activity.

To gain a better understanding of how the sun works, the two researchers created a simulation that models the sun's entire magnetic field activity—no small feat. They ran their simulation on University of Montreal supercomputers which are connected to a larger network across the city. In so doing, they observed that though the sun as a whole experiences an 11 year cycle of solar polar reversals (as noted here on Earth by the periodic nature of observable sun spot activity), zonal magnetic field bands undergo a polarity reversal on average every 40 years.

Scientists have for years been trying to model the sun, but thus far attempts to do so have been lacking. The problem is that there is so much going on and the sun is so huge—to simulate it all requires more computing power than is available. At the root of all the simulations is turbulence, which is where a gas or fluid flows in a chaotic fashion. The new model shows that turbulence in the sun comes from within and flows outwardly, dissipating into ever smaller vortices, but it, like other simulations can only model this dissipation to a certain degree. At some point, the vortices are as small as just meters across and thus are too small to include in a model because there are just too many of them. The simulation built and run by Charbonneau and Smolarkiewicz goes as far as modern computers are able and shows the sun's action as a dynamo—where the amplification of a magnetic field is self-sustained due to fluid motion action.

Studying the sun and how it works is not purely academic, of course, learning how to accurately predict solar flares—when they might occur and how large they might be,

would be very useful as the world becomes more and more dependent on sensitive electronic instruments that can be adversely impacted by events on the sun.

This article originally appeared on the Phys Org website. For the complete article, [click here.](#)



Marines Prepare for Afghanistan in Simulator

MARINES WITH 9TH ENGINEER SUPPORT BATTALION obtained valuable experience for their upcoming deployment to Afghanistan in support of Operation Enduring Freedom in the safe environment of the combat convoy simulator on Camp Hansen.

Experience and knowledge is invaluable when conducting a convoy in a combat environment, according to Staff Sgt. Joseph K. Freeman, a platoon sergeant with 9th ESB, 3rd Marine Logistics Group, III Marine Expeditionary Force.

"The goal of this training is to help the Marines understand the initial reaction drills and ensure they are using the proper tactics, techniques and procedures," said Freeman. "There is no replacement for reality, but here on Okinawa, with all the jungle, it is very hard to recreate the terrain in Afghanistan."

During the training, Freeman used the simulator to create scenarios and threats his Marines may encounter during a convoy in Afghanistan. The simulator can also present Marines with actual roads and convoy routes from Afghanistan they may encounter while on their deployment.

"We can literally do anything with this system," said Freeman. "Anything you can encounter in a real-world scenario, we can duplicate in this simulator. We can hide roadside explosives, create complex blocked ambushes, and have noncombatants, such as a goat farmer with his herd of goats, in the middle of the road. Our imagination is the only limitation when creating these scenarios."

The simulator is a vital tool for getting Marines in a combat mindset as their deployment nears, according to Cpl. Derrek D. Solarz, a combat engineer and team leader with the battalion.

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





Air Force, Italian Medics Simulate Joint Patient Care



Photo Credit: Courtesy Photo

Staff Sgt. Christina Marie Smith, 31st Aerospace Medicine Squadron ambulance service technician, monitors the vital signs of a simulated infant being transported to the Pordenone Hospital from Aviano Air Base, Italy, March 14, 2013. Base and Pordenone medical personnel teamed up for the region's first international exercise to strengthen their working relationship and provide better care to patients.

MEMBERS OF THE 31ST MEDICAL GROUP AT AVIANO AIR BASE and the local Italian hospital in Pordenone, Italy, came together April 17 to discuss the results of the region's first international patient care simulation.

The collaboration, which took place in early March, encompassed all levels of care needed to transport a newborn infant from the Aviano medical treatment facility to Pordenone.

The scenario was decided by a team of medical professionals and leaders from both medical facilities, who came together months before the simulation to determine what the participants would encounter.

"We began planning this particular scenario because this is one of our most common situations and something that most of the players are familiar with," said Jessica Schwartz, 31st MDG simulation operator. "Exercises aren't a stranger to military operations, but the full participation of our Italian counterpart's leadership on both sides really helped bring it all together and make this a success."

Although the simulation was important, the major focus was on identifying shortfalls and areas for improvement so that the two organizations can provide better care, said Schwartz.

A key item brought to light was timeliness of travel between the two locations. Currently, 31st MDG emergency vehicles are not authorized to drive at speeds exceeding posted speed limits or with lights and sirens active. Being able to operate under Italian transportation standards could potentially shave valuable minutes off transportation time.

"We agree this is unacceptable and want to work with [Aviano] and the area prefect to develop a policy that allows Aviano ambulances to quickly travel between the hospitals," said Dr. Vincenzo Mione, Friuli Region emergency response director. "This is what's best for the patient which makes it best for us, since that is why we are here."

Another improvement identified was communication. During the transport, Aviano medical members completed the patient history form detailing the latest stats and vitals so that upon arrival, the infant would receive expedited care with minimal delay.

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





FEATURED HIGH LEVEL TASK - PMT

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.



M&SCO’s Project Management Tool (PMT)

IF YOU MANAGE PROJECTS WITHIN THE DEPARTMENT OF DEFENSE, you now have a readily available web-based, CAC-enabled tool to make your needs visible and help manage your tasks even more efficiently. Whether you’re a Soldier, Sailor, Airman or Marine, work on a flight line or in a cubicle, you can use the Project Management Tool to track your M&S projects. The DoD Modeling and Simulation Coordination Office’s (M&SCO’s) tool can help you organize your projects, regardless of what agency or office you work with in the Department.

The Project Management Tool, also known as the PMT, is an enterprise solution designed to help streamline your project management collection efforts. This multi-service tool will support the lifecycle of need submission and review, and the submission and review of projects to meet those needs. In addition, it provides for high-level management of selected projects. With this high level capability, you can track projects from the time they’re initiated, through the entire review-funding-and-project management process. The PMT also offers traceability between your need and project submissions.

By design, M&SCO’s PMT supports all the military services, but it also supports multi-organizational uses within the services to manage needs and/or potential projects to fulfill those common needs. Through the use of role-based access controls and a common process to govern the review and reporting of needs and projects, this tool supports more timely decisions for any organization.

To begin using the PMT, link to the PMT website at <https://pmt.msco.mil> and complete the Feedback Form. You can also seek more detailed help by emailing PMTHelpdesk@pmt.msco.mil. The PMT support team looks forward to helping first-time users get started. For other questions, please contact the PMT Program Manager at 407-380-4214.

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M&S WHAT AND WHEN

MODELING & SIMULATION CALENDAR OF EVENTS

Summer Simulation Multi-Conference (SummerSim 2013)

July 7 – 10, 2013
Toronto, ON, Canada

8th Annual Capitol Hill Modeling and Simulation Expo

July 10, 2013
Washington, DC

Fall Simulation Interoperability Workshop (SIW 2013)

September 16 – 20
Orlando, FL

Promote an Event:

If you would like to promote an M&S event on the Calendar, please email the event information to

Ask.MSCO@osd.mil



THE M&S NEWSLETTER

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