MSIAC M&S Newsletter

August 2006

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If you would like to submit an article to be highlighted in the *MSIAC M&S Newsletter*, please forward the article (along with its source data and URL, if available) to the MSIAC Help Desk no later than 15 workdays prior to the publication of the next Newsletter. Normally, the Newsletter is published on/about the first of each month. Potential articles as well as questions or comments on the Newsletter can be emailed to msiachelpdesk@msiac.dmso.mil.

The MSIAC also publishes the quarterly *MSIAC Journal On-line*. If you would like to see the current issue of the *MSIAC Journal On-line* visit: http://www.msiac.dmso.mil/journal. If you would like to submit an article for the Journal On-line, please email your paper or article to msiachelpdesk@msiac.dmso.mil at least 45 days prior to the next publication date.

UPCOMING EVENTS

8-10 August 2006
Modeling and Simulation Staff Officer Course (MSSOC)
Orlando, FL

15-16 August 2006
NDIA Systems-of-Systems Engineering Guide Workshop
Washington, DC

22-24 August 2006
Joint ADL-Co-Lab Implementation Fest 2006
Orlando, FL

6-7 September 2006
Disruptive Technologies Conference
Washington, DC

10-15 September 2006
Fall Simulation Interoperability Workshop (SIW)
Orlando, FL

12-14 September 2006
Modeling and Simulation Staff Officer Course (MSSOC)
Alexandria, VA

25-27 September 2006
Systems Engineering and Test & Evaluation Conference (SETE)
Melbourne, Australia

26-29 September 2006
11th International Command and Control Research and Technology (CCRTS)
Cambridge, UK

JOINT ADL CO-LAB IMPLEMENTATION FEST 2006

The Joint Advanced Distributed Learning Co-Laboratory (JADL) is proud to announce the annual JADL Implementation Fest. This year's conference will be held August 22-24, 2006 at Disney's Yacht & Beach Club Resorts and Convention Center located in Lake Buena Vista, Florida. Pre-conference activities will take place over the weekend prior and on Monday, August 21.

This event will feature updates from the Office of the Secretary of Defense on Training Transformation, as well as updates from the Services on current ADL efforts and

challenges. You will also hear first-hand from Warfighters about their need for and perspective on distributed learning: preparation for deployment, workarounds, and the reality of training while in the field. Other topics include: Implementation of DoD Instruction 1322.26, Development, Management, and Delivery of Distributed Learning; the status of the Sharable Content Object Reference Model (SCORM®); the ADL-Registry; Education and Assessment; the integration of SCORM and S1000D; and the Open Platform for E-Learning (OPEL). The event will also feature a panel of experts discussing the Analysis, Design, Development, Implementation and Evaluation (ADDIE) Process, as well as a panel focused on Simulations and Games. Also, as with years past, the Joint ADL Co-Lab will showcase their Prototype Program and share demonstrations of the 2005 Prototypes.

The final day of this year's conference will feature individual Focus Sessions. Topics will include: Education and Training; Technology; Implementation Challenges and Opportunities; and ADL Acquisition. For more information visit: http://www.msiac.dmso.mil/mscalendar/month.php?cid=&catid=&d=&w=&m=8&y=2006&s=

COMMAND SIMULATION TOOL CHANGES NAME AS IT EXPANDS SCOPE

(SUFFOLK, Va. - August 1, 2006) - U.S. Joint Forces Command changed the name of its Joint Warfare System (JWARS) to Joint Analysis System (JAS) to better reflect the program's capabilities.

The program's manager, Navy Cmdr. Gregg Martin, said he is hopeful the use of JAS will expand to support many U.S. organizations outside DoD.

"The name change is an attempt to capture the full potential of the simulation," Martin said. "Although the simulation's capabilities are best suited to represent the joint warfighter for military studies, its object-oriented architecture gives JAS the flexibility to support many other analytic efforts."

Martin said the name change better portrays the simulation's capability to support the USJFCOM mission of meeting the present and future operational needs of the joint force, while expanding the scope of applications the simulation can support. Those applications include homeland defense, crisis response, and planning for natural disasters.

JAS Program Office Director Bob Graebener said the new name reflects these broader capabilities and applications to the users of modeling and simulation.

"JAS offers the user a simulation tool that will aid commanders in making better informed decisions," Graebener said. For complete article visit: http://www.jfcom.mil/newslink/storyarchive/2006/pa080106.htm

AFMC DEMONSTRATES INTEGRATED MODELING AND SIMULATOIN CAPABILITY

(WRIGHT-PATTERSON AIR FORCE BASE, Ohio) - Three Air Force Materiel Command organizations teamed up with six other Air Force agencies and three industry partners to participate in an ICE Breaker on July 17-21, 2006.

However, in this case, ICE Breaker was not a social event. It refers to the Air Force Integrated Collaborative Environment. AF-ICE is an Air Force initiative that provides a setting in which the interoperability and network-compliance of systems can be planned, developed, tested and evaluated before systems are made available to the warfighter.

The inaugural AF-ICE ICE Breaker was the first of planned annual events to demonstrate integrated Air Force modeling and simulation (M&S) capabilities aimed at accelerating acquisition. It demonstrated the first step in linking computer network capabilities across Air Force acquisition centers as well as collaborative software advancements necessary to realize the envisioned AF-ICE capability.

AF-ICE is the Air Force initiative to establish

the authoritative Live, Virtual, and Constructive (LVC) collaborative environment to support capabilities-based planning, system development and test, and final evaluation of system-of-systems interoperability and net-compliance before fielding.

Led by AFMC, it is the only Air Force initiative that provides this type of M&S environment. The AF-ICE goal is to use M&S to meet Air Force acquisition and development goals, which in turn will provide the most-advanced capabilities to the warfighter on-time and on-cost. AF-ICE provides the M&S distributed environment described in the Air Force M&S Vision Document under the Accelerated Acquisition Thrust. For complete article visit: http://www.msiac.dmso.mil/newsdigest/afmc.doc

DIAL-A-RIOT – NEW SIMULATION MODELS CROWD BEHAVIOR

If sticks and stones can break your bones, then why provoke a mob? In the hair-trigger world of stabilization and peacekeeping operations, troops inevitably encounter protesters with wicked tempers and a fondness for throwing objects.

Incorporating mob behavior into defense simulations would seem to be a no-brainer. But U.S. defense simulations have been unable to effectively model civilian crowds, from angry protesters looking for a fight to nosy bystanders who just want to see what the fuss is about.

“You don’t want to train in urban operations when there are no people around, or the people are ignoring you or are not responsive to what you are doing,” said Rick McKenzie, an associate professor of electrical and computer engineering at Old Dominion University in Norfolk, Va. “You are not going to go into Fallujah and not be noticed.”

McKenzie has devised Crowd Federate, a model that will add a crowd component to a variety of defense simulations. “The intent is to provide a real-time, realistic, psychologically based crowd model to provide interactions with control forces.”

Based on extensive psychological research, Crowd Federate works at several levels. At the smallest, the model tracks individual people, although only for navigation within the city at this point. The psychological aspects kick in at the group level, with groups typically composed of 10 people.

“There are different types of groups,” McKenzie said. “There is the protester group which protests for a cause. They’re the ones holding the banners. The agitator group is there to cause trouble. The bystanders are just there and don’t want to get involved. Then there is the curious group that will move toward anything interesting and stick their noses in. If something violent should erupt, they will probably run away.” For complete article from Training and Simulation (TS&J) Online visit: http://www.tsjonline.com/story.php?F=1717278

SIMULATION GETS (MORE) REAL AT SIMLABS

High fidelity flight simulation at NASA's Vertical Motion Simulator (VMS) is getting even better thanks to a new digital force-feel system. The new system, called a digital pilot control loader, provides the pilot with forces on the controls similar to those they would feel in real flight.

The new digital loader replaces the existing analog system. It can provide the basic simulated forces such as a simple spring force, damping, position stops, and friction, plus new features such as stiction (the force required to get something moving), non-linear force gradients, and gravity compensation.

The new digital pilot control loader uses a personal computer, modeling software, and a graphical user interface. The combination of real-time computers that run at precise frame times and high-speed digital-to-analog converters (DACs) and analog-to-digital converters (ADCs) provides affordability and better performance over previous versions.

Using object-oriented programming techniques, the user-friendly interface lets users create programs by drawing a functional diagram. The graphical user

software allows users to build a simulated hardware panel that has the look of real hardware, with buttons, switches, indicators, and meters.

Measuring the force output on pilot control loaders has always been a problem because the force output also contains inertial effects such as gravity. An inertial compensation circuit was prototyped at SimLabs to compensate not only for gravity, but other inertial effects. The new digital loader software will be able to receive the output of the inertial compensation circuit to provide more realistic force-feel effects and will handle nearly any mechanical characteristic that must be simulated. For complete article visit:
http://www.simlabs.arc.nasa.gov/newsletter/news.html

SCIENTISTS ACCURATELY SIMULATE APPEARANCE OF SUN'S CORONA DURING ECLIPSE

The most true-to-life computer simulation ever made of our sun's multimillion-degree outer atmosphere, the corona, successfully predicted its actual appearance during the March 29, 2006, solar eclipse, scientists have announced.

The research, funded by NASA and the National Science Foundation (NSF), marks the beginning of a new era in space weather prediction. The results are presented at the American Astronomical Society (AAS)'s Solar Physics Division meeting in Durham, N.H.

"This confirms that computer models can describe the physics of the solar corona," said Zoran Mikic of Science Applications International Corporation (SAIC), San Diego, Calif.

The turbulent corona is threaded with magnetic fields generated beneath the visible solar surface. The evolution of these magnetic fields causes violent eruptions and solar storms originating in the corona.

Like a rubber band that's been twisted too tightly, solar magnetic fields suddenly snap to a new shape while blasting billions of tons of plasma into space, at millions of miles per hour, in what scientists call a coronal mass ejection (CME). Or the magnetic field explodes as a solar flare with the force of up to a billion 1-megaton nuclear bombs.

When directed at Earth, solar flares and CMEs can disrupt satellites, communications and power systems.

"Finding out that a hurricane is bearing down on you isn't much good if the warning only gives you an hour to prepare," said Paul Bellaire, program director in NSF's Division of Atmospheric Sciences, which funded the research. "That's the situation we're in now with space weather. Being able to determine the structure of the solar wind at its source - the sun - will give us the lead time we need to make space weather predictions truly useful."

By accurately simulating the behavior of the corona, scientists hope to predict when it will produce flares and CMEs, the same way the National Weather Service uses computer simulations of Earth's atmosphere to predict when it will produce thunderstorms or hurricanes. The corona model is the starting point for a chain of models being developed by an NSF-supported science and technology center, The Center for Integrated Space Weather Modeling. For complete article visit:
http://www.nsf.gov/news/news_summ.jsp?cntn_id=107049&org=NSF&from=news

NASA STUDY FINDS CLOCK TICKING SLOWER ON OZONE HOLE RECOVERY

The Antarctic ozone hole's recovery is running late. According to a new NASA study, the full return of the protective ozone over the South Pole will take nearly 20 years longer than scientists previously expected.

Scientists from NASA, the National Oceanic and Atmospheric Administration (NOAA) and the National Center for Atmospheric Research (NCAR) in Boulder, Colo., have developed a new tool, a math-based computer model, to better predict when the ozone hole will recover.

The Antarctic ozone hole is a massive loss of ozone high in the atmosphere (the stratosphere) that occurs each spring in the Southern Hemisphere. The ozone hole is caused by chlorine and bromine gases in the stratosphere that destroy ozone. These gases come from human-produced chemicals such as chlorofluorocarbons, otherwise called CFCs.

The ozone layer blocks 90-99 percent of the sun's ultraviolet radiation from making contact with Earth. That harmful radiation can cause skin cancer, genetic damage, and eye damage, and harm marine life.

For the first time, a model combines estimates of future Antarctic chlorine and bromine levels based on current amounts as captured from NASA satellite observations, NOAA ground-level observations, NCAR airplane-based observations, with likely future emissions, the time it takes for the transport of those emissions into the Antarctic stratosphere, and assessments of future weather patterns over Antarctica.

The model accurately reproduces the ozone hole area in the Antarctic stratosphere over the past 27 years. Using the model, the researchers predict that the ozone hole will recover in 2068, not in 2050 as currently believed. For complete article visit: http://www.nasa.gov/centers/goddard/news/topstory/2006/ozone_recovery.html

THE VIRTUAL COMBAT TRAINING CENTER

The Virtual Combat Training Center (V-CTC), an intelligent tutoring system built under the DARPA DARWARS program, is a PC-based simulation of a combat training center exercise, including observer-controller and after action review functions. V-CTC, running as an overlay on top of the commercially available tactical simulation Armored Task Force, manufactured by the ProSIM Company, provides continuous observer/controller (O/C) pop-up guidance during a simulated mission and the after action review following it. The virtual O/C capabilities of V-CTC are based on intelligent tutoring system (ITS) technologies that are typically labor intensive and expensive to develop.

However, V-CTC amortizes the normally high costs by separating the ITS component from the simulation and through an architecture designed for reuse in accordance with DoD's current simulation product development philosophy. At this time the V-CTC tutor capabilities are in a beta-test code level, undergoing proof of concept, and are being demonstrated in an example for battalion fire support officers.

The live Army training provided in combat training centers is invaluable, but limited due to its availability and cost. Through V-CTC the benefits of these live training experiences can be extended by providing low-cost, available, realistic, and relevant PC-based training.

V-CTC will allow commanders and staffs to better hone their knowledge of primary tactics and better understand the CTC environment prior to a National Training Center (NTC) rotation, allowing a greater focus on tactics, techniques, and procedures while at NTC itself. For complete article visit MS&T Magazine, Issue 2/2006, http://mst.texterity.com/mst/2006-1/.