Welcome to the April/May 2008 edition of the Modeling and Simulation Information Analysis Center (MSIAC) M&S Newsletter. In this issue you will find 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 April/May edition and look forward to your comments.

The MSIAC notes that the wordings in the excerpts do not always correspond to official DoD usage, but that the full articles available through the links provide valuable insight into the applications of M&S technologies throughout the community.

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The following article about the DoD Annual Modeling and Simulation Awards for Excellence originally appeared on the Department of Defense's Defenselink website.

DoD ANNOUNCES WINNERS OF ANNUAL MODELING AND SIMULATION AWARDS FOR EXCELLENCE

The Department of Defense announced that seven winners have been selected for the 10th annual Department of Defense Modeling and Simulation Awards for Excellence. The annual awards recognize DoD people and organizations for achievement in the development of modeling and simulation capabilities, and the improvement of military capability, readiness, or mission effectiveness. The winners are:

The Army's Battle Command Training Branch, Directorate of Plans, Training, Mobilization, and Security, Headquarters, III Corps at Fort Hood, Texas, received an award for innovative uses of simulation in support of battle command training for deploying soldiers and units of III Corps' "Hub" and its "Spokes" at Forts Carson, Riley, Sill and Bliss.

The Army's Operational Test Command and the Research, Development, and Engineering Command at Fort Hood, Texas, received an award for collaboration between two Army commands with two very different missions, but with a common desire to provide simulation capabilities in support of the Army's acquisition efforts.

The Navy's Verification, Validation, and Accreditation Template Team at the Space and Naval Warfare Systems Center at San Diego, Calif., received an award for developing and delivering a standardized template for documenting verification, validation and accreditation for models and simulations.

The Air Force's Homeland Air and Cruise Missile Defense Analysis Team in Washington, D.C., received an award for providing analysis culminating in a U.S. homeland air defense investment strategy.

The Air Force's DoD Air and Space Natural Environmental Executive Agent Team in Washington, D.C., received an award for its contributions to the strategic vision for DoD modeling and simulation.

The Air Force's 705th Combat Training Squadron at Kirtland Air Force Base, N.M., which operates the Distributed Mission Operations Center, received an award for making significant advancements in exercise delivery and combat training.

Navy Cmdr. Brett M. Pierson, Joint Staff, J-8 in Washington, D.C., received an individual award for leading an effort to develop a system dynamics-based model of counterinsurgency that provides insights into irregular warfare.

The awards were presented to winners March 11 at the DoD Modeling and Simulation Conference in Orlando, Fla. Click here for the original article.

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The following article about the Study of M&S originally appeared in the Modeling and Simulation Caucus Newsletter, March 2008.

BILL TO ENHANCE THE STUDY OF M&S INCLUDED IN EDUCATION BILL PASSES THE HOUSE

The House of Representatives passed the College Opportunity and Affordability Act of 2007, which included a program to encourage and enhance the study of modeling and simulation at institutions of higher education. This program was part of a bill originally sponsored by Congressman Bobby Scott's (VA-03), H.R. 4165.

Currently, a limited number of institutions of higher education have Modeling and Simulation programs, including undergraduate and graduate degree programs. The grant program included in the House-passed College Opportunity and Affordability Act will provide a critical source of funding for colleges and universities that want to expand and improve their Modeling and Simulation programs.

The grant will also provide important seed money for colleges and universities that do not have a program to establish a Modeling and Simulation program. Click here for the original article and more information from the Modeling and Simulation Caucus.

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The following article about Undersea Combat Simulations Needed originally appeared in the National Defense Magazine, April 2008 issue.

UNDERSEA COMBAT SIMULATORS NEEDED, NAVY SAYS

ORLANDO — The Navy is worried about quiet diesel-electric submarines that are proliferating around the world and particularly in the western Pacific. But officials say the bigger challenge is training sailors to find and engage those submarines. Rising fuel prices, restrictions on the use of sonar and less availability of ships are curtailing training, officials say.

In recent years, the Navy has sought to train sailors ashore in simulators. But virtual trainers do not accurately depict the near-shore environment in which the diesel submarines are operating, they assert. Nor do they replicate the sonar capabilities of current ships, particularly in the surface fleet.

There is a great need for anti-submarine warfare training technologies, says Vice Adm. John Harvey, Jr., deputy chief of naval operations for manpower, personnel, training and education.

Replicating the near-shore undersea environment in the virtual world has been a particular challenge for simulation experts. Not only is the topography of the ocean floor varied with reefs, volcanoes, sand bars, and other elements, but also the littoral waters are often teeming with activity from marine biological life and merchant shipping. All of that generates noise and alters how sound propagates through the water. To capture those factors in a model would take time and resources, industry experts say. Click here for the complete article.

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The following excerpt from an article about Air Force Simulation Training originally appeared on the TSJ Online website.

RAPTOR'S SOLO CHALLENGE

It's sim to single seat for younger pilots training on F-22

Like most next-generation aircraft, flight training for the U.S. Air Force's F-22 fighter has been limited to the more experienced pilots during the aircraft's formative years, a recognition of the aircraft's price tag and the need for a steady hand at the throttle in case of problems in flight. But after four years of training those mature pilots, the Raptor program is preparing its first basic training course for four lieutenants, three of whom only recently completed the fighter fundamentals course.

That quartet of young officers — "the best of the best" picked from a flock of pilots all wanting to fly the single-seat Raptor — will move in March to Tyndall Air Force Base, Fla., where all non-operational F-22 instruction is conducted, to begin seven months of training. They'll be part of the 43rd Fighter Squadron that is responsible for providing aircrew training for the Raptor, for which 112 have been built to date by

lead contractor Lockheed Martin, and 105 delivered to the Air Force.

After leaving the "B course," the F-22 qualified pilots will move on to operational squadrons around the U.S. that host Raptors: Langley Air Force Base, Va.; Elmendorf Air Force Base, Alaska; and Holloman Air Force Base, N.M., in the near future.

The B course, about twice as long as the transition training courses going on at Tyndall since 2004, faces the unique issue of teaching new students with relatively few flying hours in a fighter how to prepare themselves for their first flight in the actual Raptor — a single-seat aircraft. Unlike the F-16 and F-15 training programs, there are no two-seat trainer aircraft with an instructor in the back seat for the Raptor, leaving an inherently higher risk to students on their first flights. Air Force officials, however, say the training syllabus has taken that factor into account for the B course.

We're going to have a brand new concept of engines, of flight controls [for those students]; all that stuff is new, so, obviously, we've cut those and spread them out," said Lt. Col. David Krumm, 43rd Fighter Squadron commander. "So it's more academic classes, more tests, and what you'll find is we have a lot more simulators, as well. In particular, we have about 50 percent more simulators than in the F-15 or F-16 course."

Those simulators are an Egress Procedures Trainer to learn cockpit ejection and canopy separation procedures, a lower-fidelity Weapons Tactics Trainer used in consort with classroom instruction and, most important, a Full Mission Trainer built to resemble an actual Raptor cockpit and which offers a 360-degree field of vision. Click here for the complete article.

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The following excerpt from an article on Virtual Worlds originally appeared on the TSJ Online website.

SECOND-LIFE TRAINING
Virtual worlds bring benefits but also security issues

O brave new world, will thou be virtual? It will be, at least partly, for the U.S. military and other arms of the federal government if a new consortium has its way. Spurred by the explosive growth of civilian virtual worlds such as Second Life and its 12 million "residents," the U.S. government is trying to create a common approach to exploiting the technology.

The problem facing government users of virtual worlds is that they are "in unempowered places, at each little organization within agencies and organizations, in little pockets where they don't know about each other," said Paulette Robinson, an instructional technology expert and an assistant dean at the U.S. National Defense University (NDU).

Robinson has organized the Federal Consortium for Virtual Worlds, an unfunded effort run through NDU's Information Resources Management College. The consortium has already attracted 196 members, including 80 federal organizations, 63 private companies and 28 higher-education organizations. A conference sponsored by the consortium in November attracted 492 attendees — 175 physically attended the conference in Washington, D.C., and appropriately enough, 182 joined in through a Second Life conference room and another 135 participated through streaming video. Enthusiasts of virtual worlds paint a panorama of unlimited possibilities, especially in collaboration and data visualization.

Those who have a life outside Second Life may be forgiven for asking a simple question: What exactly is a virtual world? There is no comprehensive definition, although there are common characteristics, such as 24/7 operations and the ability to handle large numbers of users.

The most well-known world is Linden Lab's Second Life, an apt name for a mirror universe that features digital office buildings, churches and banks with virtual money. A basic membership in Second Life is free, but users spend real dollars to stake out online real estate.

NDU is buying four "islands" in Second Life, each with a capacity of 60 users. In March, NDU's

Information Resources Management College was to open the first island, complete with welcome center, conference center and crisis center (with live news feeds, of course).

The next step is an auditorium that will be named "The Government Center," available for other government users. NDU also will experiment with using Second Life for continuity of operations. "If something happens in Washington and we want to meet somewhere, one of our resources will be the Second Life island," Robinson said. Click here for complete article.

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The following excerpt from an article about Climate Models originally appeared in ScienceDaily.

CLIMATE MODELS LOOK GOOD WHEN PREDICTING CLIMATE CHANGE

ScienceDaily (Apr. 6, 2008) - The accuracy of computer models that predict climate change over the coming decades has been the subject of debate among politicians, environmentalists and even scientists. A new study by meteorologists at the University of Utah shows that current climate models are quite accurate and can be valuable tools for those seeking solutions on reversing global warming trends. Most of these models project a global warming trend that amounts to about 7 degrees Fahrenheit over the next 100 years.

In the study, co-authors Thomas Reichler and Junsu Kim from the Department of Meteorology at the University of Utah investigate how well climate models actually do their job in simulating climate. To this end, they compare the output of the models against observations for present climate. The authors apply this method to about 50 different national and international models that were developed over the past two decades at major climate research centers in China, Russia, Australia, Canada, France, Korea, Great Britain, Germany, and the United States. Of course, also included is the very latest model generation that was used for the very recent (2007) report of the Intergovernmental Panel on Climate Change (IPCC).

"Coupled models are becoming increasingly reliable tools for understanding climate and climate change, and the best models are now capable of simulating present-day climate with accuracy approaching conventional atmospheric observations," said Reichler. "We can now place a much higher level of confidence in model-based projections of climate change than in the past."

The many hours of studying models and comparing them with actual climate changes fulfills the increasing wish to know how much one can trust climate models and their predictions. Given the significance of climate change research in public policy, the study's results also provide important response to critics of global warming. Earlier this year, working group one of the IPCC released its fourth global warming report. The University of Utah study results directly relate to this highly publicized report by showing that the models used for the IPCC paper have reached an unprecedented level of realism.

Another important aspect of the research is that climate models built in the U.S. are now some of the best models worldwide. Increased efforts in the U.S. over the past few years to build better climate models have paid off, and according to the authors' measure of reliability, one of the U.S. models is now one of the leading climate models worldwide. Click here for the complete article.

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The following article about USJFCOM's New Joint Intelligence Laboratory opening originally appeared on the USJFCOM website.

USJFCOM OPENS NEW JOINT INTELLIGENCE LABORATORY

U.S. Joint Forces Command's Joint Transformation Command-Intelligence officially opened the doors to the Joint Intelligence Laboratory, which will explore

and improve emerging intelligence capabilities while routinely working with organizations across the government, academia and industry.
(SUFFOLK, Va., April 4, 2008) – U.S. Joint Forces Command's Joint Transformation Command for Intelligence (JTC-I) officially opened the doors to its newest facility, the Joint Intelligence Laboratory (JIL), which will focus on improving intelligence capabilities and supporting the integration of intelligence, operations and plans.

In a ceremony here today, U.S. Army Lt. Gen. Bob Wood, USJFCOM's deputy commander, said the JIL allows emerging technologies, partnerships across Department of Defense, intelligence community, industry and academia and infusion of intelligence and operations to converge in one location to provide ever-increasing support to activities such as mission readiness exercises, operational planning and mission rehearsal, joint training development, joint experimentation and joint systems integration.

"The JIL provides a forum to take best practices from the leading edge and analyze the utility of those best practices," Wood said.

U.S. Army Col. Chuck Mehle, JTC-I commander, said the JIL discovers emerging processes, methodologies and technologies to enhance the intelligence discipline, while supporting the transformational activities of the Defense Department and the intelligence community.

"We have been operating for several months, but today is a significant day to us for two reasons; it kicks us up to the next level the collective level of operations of all of our partners and makes them very aware of not only the current body of work, but also the capabilities and the potential of this organization," Mehle said.

Mehle said the intel laboratory has several shared technologies that allow its analysts to routinely work with organizations like the Defense Intelligence Agency and several other service and national labs.

"This organization is rightly positioned in Suffolk where we have equities across Joint Forces Command and the Department of Defense intelligence community, as well as other organizations to include academia and our contracting partners who are a part of the team," Mehle said. "They are a solid part of the team that comes in (the JIL).

"You'll go in and see work groups with a professor, a [defense] contractor and a military member in there working a problem, solving these problems and getting them out. That's why I am happy to let folks know the value of the gem that is the JIL." Click here for the original article.

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MSIAC M&S NEWSLETTER

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