NWDC/CRUSER Warfare Innovation Workshop (WIW)

By Lyla Englehorn, CRUSER Director of Concept Generation, laengle@nps.edu

This NWDC/CRUSER sponsored Warfare Innovation Workshop (WIW) is scheduled for 22-25 September 2014 as a Naval Postgraduate School Enrichment Week activity to explore warfighting in the contested littorals.

Background:
Starting in 2009, NPS warfare innovation workshops have addressed self-propelled semi-submersibles, maritime irregular challenges, undersea weapons concepts and unmanned systems concepts generation. Participants in these workshops are junior officers from NPS, the fleet, and other DoD commands; early career engineers from Navy laboratories, academia and industry; and CNO Strategic Studies Group (SSG) Director Fellows.

Purpose:
Emerging technologies in unmanned systems; autonomy; missile systems; undersea systems; long-range, netted and multi-domain sensors; and networks create a new environment for operations on and over the sea. This changing technology environment both challenges traditional fleet operations and provides opportunities for innovative tactics, techniques, and procedures to achieve naval objectives in sea control, power projection and counter Anti-Access Area Denial (A2AD) strategies in the littorals. This workshop will focus on warfighting in the complex and electromagnetically contested environment of the littoral. It will address opportunities in swarm ISR to support tactically offensive operations, expeditionary mining and marine raid concepts, alternative methods of ship to ship communications in a Network Optional Warfare concept, laser weapons in defense, and other related research topics. The larger research question is “Will emergent technologies (unmanned systems, advanced computing power, automation, advanced sensor capabilities, laser weapons etc.) allow us to fight effectively in the complex and an electromagnetically contested littoral environment against sea denial forces?”

Workshop Design:
This NWDC/CRUSER WIW will take advantage of the innovation lessons learned in previous workshops and will be designed to include the following:
1. Knowledge leveling briefs, followed by team break outs for two days of concept generation; and ending with a morning of final briefs to NWDC, the NPS Chair of Warfare Innovation, and CRUSER leadership.
2. This workshop is open to all NPS students, DoD personnel from other commands and labs, and vetted CRUSER members from academia and industry – all curriculums, all services.

Additional information available at http://CRUSER.nps.edu
**Director’s Corner**
Lyla Englehorn, Director Concept Generation

**WANTED: Professionals who want to make a difference**

The Naval Postgraduate School’s September 2014 Warfare Innovation Workshop will tackle the difficult but important topic of “Warfighting in the Contested Littorals.” We invite NPS students, DoD personnel from other commands and labs, and CRUSER members from academia and industry to participate in this important enrichment week event.

Teams of officers from across the NPS campus, engineers from navy labs and industry, and junior officers from the fleet will be tasked with generating concepts to employ new technologies in a challenging scenario.

Check in begins at 0800 on Monday morning 22 September. Monday is spent in a series of knowledge-leveling, scenario and mission briefs. Tuesday and Wednesday are set aside for concept generation work with your team of eight to ten students. Teams will present final briefs on Thursday morning, and you will be done by noon.


Let us know you are available and interested in participating, and we hope to see you there!

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**CRUSER Members in the News**

ASV’s C-Worker 6 successfully carried out a seabed transponder calibration in 1300m deep waters by Sarah Dyer, ASV Ltd, sarah.dyer@asvglobal.com

Portsmouth, 2nd June 2014

The trials which took place in the Gulf of Mexico were conducted in rough conditions with 2.5m waves.

C-Worker is the world's first unmanned oil and gas workboat. ASV Ltd designed and built the 6m vehicle at their waterside facility in Portchester, UK.

ASV Technical Sales Manager Brian Anderson said: “This unique unmanned capability could save the oil and gas industry millions of dollars. The proven ability to conduct precise subsea positioning in challenging conditions, broadens the possible applications for C-Worker”.

ASV has completed the build of a second C-Worker with sea trials now taking place in the UK.

Formed in 1998, ASV provides rugged, reliable and effective unmanned marine systems using the latest advances in autonomous technology. Based near Portsmouth in the UK, ASV operates in international military and security, oil and gas, and science and survey industries.

Additional content including video at: http://www.asvglobal.com/latest-news/asv-c-worker-completes-deepsea-trials

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Send in your submissions for “CRUSER Members in the News” to cruser@nps.edu to feature your work in an upcoming issue
Joint Test and Evaluation Joint Counter Low, Slow, Small Unmanned Aircraft Systems (JCLU JT), sponsored by the United States (US) Air Force Warfare Center and operating from Nellis AFB, is well into planning for its upcoming final field test. This test will support the JCLU JT’s identified goal to understand the ease, operation, and threat that low, slow, small (LSS) unmanned aircraft systems (UAS) can have against US forces. Chartered to begin this effort in August 2012 and focused on the combatant commands and the warfighter, OSD put JCLU JT into operation to develop a way to protect the force and improve defense against the LSS UAS threat.

The JCLU JT focus is identifying characteristics of the LSS UAS threat to the joint warfighter and developing tactics, techniques, and procedures (TTP) to detect and identify these threat systems. This, in turn, will improve the ability of the integrated air and missile defense (IAMD) operators to detect, track, and identify the LSS UAS threat. JCLU JT’s efforts have, to date, resulted in interaction and close coordination with deployed forces executing real world mission support. This interplay built upon an award winning effort to support the force; specifically, the recent announcement that Ms. Elaine McDonnell, JCLU JT’s Test Manager, was awarded the 2014 National Defense Industrial Association’s Contractor of the Year Award.

This award recognized the efforts of Ms. McDonnell and JCLU JT personnel in the successful planning and execution the team’s first field test in July-August 2013 at Point Mugu Sea Test Range, CA, during Black Dart 2013. The annual Black Dart event is the premier, and only, Department of Defense (DOD) counter-UAS demonstration and JCLU JT will again participate in the 2014 event this summer.

The LSS UAS threat, which the JCLU JT endeavors to mitigate, is not just confined to the potential adversaries facing the US and their use of Groups 1 and 2 UAS. The potential threat against the Homeland potentially encompasses the “do it yourself” or remote controlled model aircraft (RCMA) constructed by individuals using commercial, readily available, sophisticated technology. These aircraft have the potential to be threats against units deployed overseas as well as here in the US.

While utilizing DOD collection systems to enable the transfer of data to the IAMD operators and improve the protection of the warfighter while deployed overseas is paramount, understanding what the threat could develop from internal to the Homeland is also important. As JCLU JT’s efforts continue forward towards its final field test, it is imperative to recognize and view up close what the RCMA/Groups 1 and 2 threats could be. To this end, in early May, the JCLU JT team had the opportunity to view this potential threat up close.

A visit to the William G. Bennett Memorial Remote Controlled Aircraft Field near Cashman Field provided an outstanding opportunity to view Groups 1 and 2 UAS in the form of gas- and electric-powered RCMA. These RCMA, observed on display and in flight at the field, ranged in size from a micro quad-rotor UAS of a few ounces to a Group 2 jet-powered, 51 pound UAS.

The President of the Las Vegas Radio Control Club, Mr. Gil Terzo, hosted the JCLU JT personnel, discussed various attributes of his organization’s RCMA operations, and arranged a walk around of the aircraft at the field. JCLU JT personnel were able to observe the capabilities of the lightly constructed aircraft, some of which were able to fly into a near 20-mile per hour headwind and were virtually silent. The JCLU JT personnel also had the opportunity to speak with the pilot of the jet-powered Group 2 UAS. It was built to resemble a US Air Force F-84 Thunderbird plane and had a range of 26 miles and a speed of 130 miles per hour.

The visit gave the JCLU JT personnel a superb occasion to look at readily available, locally purchased or homemade Groups 1 and 2 UAS. The characteristics of the UAS observed identified the potential threat of these aircraft and how hard they are to detect, track, and identify. The perspective provided will inform how the JCLU JT continues its efforts as the organization moves forward into the final field test.

As JCLU JT moves forward to culminate efforts during the upcoming field test at Black Dart 2014, we look to validate and further refine our lessons learned and TTP developed in concert with US Central Command, US Northern Command, and US Pacific Command. Black Dart is an outstanding counter-UAS demonstration event with a representative air and missile defense infrastructure that will enable JCLU JT to increase timeliness, accuracy, and reporting of LSS UAS threats in support of the combatant commanders and counter this threat to the joint warfighter.

https://intellipedia.intelink.gov/wiki/Portal:Joint_Counter_Low_Slow_Small_Unmanned_Aircraft_Systems_Joint_Test
STUDENT CORNER

STUDENT: Maj Courtney David Jones, USMC

TITLE: An Analysis of the Defense Acquisition Strategy for Unmanned Systems

CURRICULUM: Management

LINK TO COMPLETED THESIS: http://hdl.handle.net/10945/41400

ABSTRACT:

In the past 12 years of sustained conflict, the Department of Defense (DoD) has procured thousands of unmanned systems, from ordnance disposal robots to airborne surveillance platforms to unmanned cargo helicopters. These assets have saved countless lives and have become critical to DoD strategy. The health of the U.S. robotics industry must become a national strategic imperative in order to maintain technology dominance. The cyclical nature of DoD funding inevitably results in industry expansion and consolidation. The unmanned systems industry will be subject to consolidation pressures. Keeping unmanned system cost-per-copy low is critical; thus, economies of scale should be highly valued. However, premature robotics industry consolidation could threaten innovation and competition that will be critical for the U.S. military to maintain its dominance. With impending budget reductions, there will be increasing pressure to narrow down on robotics technologies to achieve efficiencies and reduce costs. However, to maintain the health of the robotics industry, the acquisition strategy must be contingent on the evolution of industry. This thesis examines the defense robotics industry and historical technology S-curves for comparable industries and evaluates unmanned system acquisition strategies.

CRUSER Librarian Corner

Hazard Above
http://www.washingtonpost.com/sf/investigative/2014/06/20/when-drones-fall-from-the-sky/

Hazard Above: Drone crash database


Short articles of 500 words for CRUSER News are always welcome - cruser@nps.edu

- Unmanned Systems/Robotics research
- New Program/Systems/Projects
- Student Research/Competitions/Clubs
- Other aspect of Unmanned Systems/Robotics

CRUSER Monthly Meetings
Mon 4 Aug, 1200-1250 (PDT)
Mon 8 Sept, 1200-1250 (PDT)
ME Auditorium or Collaborate
contact us at cruser@nps.edu for the details