Unmanned Systems

21 MAY 2013

Captain Joe Beel
Commanding Officer
SPAWAR Systems Center Pacific
“Emphasize advanced capabilities, such as Special Operations Forces and new technologies like intelligence, surveillance and reconnaissance (ISR), unmanned systems, and cyberspace capabilities.”

“... warfighters value the inherent features of unmanned systems, especially their persistence, versatility, and reduced risk to human life.”

“Unmanned systems provide diverse capabilities to the joint commander to conduct operations across the range of military operations…”

Source: Unmanned Systems Integrated Roadmap 2011-2036
"Unmanned technologies are on the rise, and they’re gaining importance not only in terms of effectiveness, but also in terms of their versatility and value. In an era of fiscal constraint or a new fiscal environment, a platform that offers those traits will almost always be the right one in which to invest."

General Martin E. Dempsey's Chairman Joint Chiefs Of Staff (CJCS) Remarks at the 2012 Joint Warfighting Conference and Exposition in Virginia Beach, VA. Wednesday, May 16, 2012
“Unmanned systems in the air and water will employ greater autonomy and be fully integrated with their manned counterparts. The Navy will continue to dominate the undersea domain using a network of sensors and platforms - with expanded reach and persistence from unmanned autonomous systems.”

Source: CNO Tenets as outlined in the Chief Of Naval Operations [Admiral Greenert’s] Sailing Directions
Navy Requirements – Unmanned Systems for increased reach, Warfighting effectiveness

- **Pervasive** coverage
- **Persistent** forward presence
- **Persuasive** power projection

Made by Rafael Defense Systems, the Protector Unmanned Naval Patrol Vehicle was deployed as far back as 2005. Image courtesy of Rafael Advanced Defense Systems.
In support of Navy requirements: ONR’s Long Term Autonomy Goals

▼ Human Interaction

▼ Perception and Intelligent Control

▼ Scalable Collaboration

▼ Intelligent Architectures

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<th>Near Term</th>
<th>Mid-Term</th>
<th>Far-Term</th>
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<tbody>
<tr>
<td>Individual or small numbers of systems, low ops tempo, moderate Manning,</td>
<td>Increased operational envelope, autonomous planning &amp; control with</td>
<td>Human/Machine &amp; Machine/Machine Teaming, More Distributed C2, New</td>
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<td>simple environments</td>
<td>reduced need for human intervention</td>
<td>Mission &amp; Tactics</td>
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<td>New operational concepts, longer term missions with much more effective</td>
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<td>Manning</td>
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# Information Dominance Roadmap: Candidates for Automation/Autonomy in Battlespace Awareness

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<tr>
<th>Fuse Essential Combat Information</th>
<th>Understand the Operating Environment</th>
<th>Enable Informed, Decisive Action</th>
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<tr>
<td><strong>Streamline Tasking, Planning and Direction</strong></td>
<td>Develop a Shared, Relevant Real-time COP / CMP</td>
<td>Increase Warfighting Options</td>
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<td>Advance Sensor Development Across All Domains</td>
<td>Understand and Predict the Physical and Virtual Environments</td>
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<tr>
<td><strong>Fully Automate Processing, Fusion and Product Delivery</strong></td>
<td>Understand Capabilities and Intentions of Allies, Adversaries and Neutrals</td>
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Source: Information Dominance Roadmap – Battlespace Awareness, Advanced Capabilities (2020 – 2028)
"We’ve demonstrated the ability to employ more modern unmanned systems, including autonomous underwater vehicles… to hunt for and detect mines…"

Vice Admiral John W. Miller, Commander, U S Naval Forces Central Command, United States Fifth Fleet, following 30-nation international mine counter-measures exercise, SEP 2012
Autonomy, Sensing, Data Assessment, Perception

AN/PDR-78 Underwater Gamma Detector

RAD SHARC

AIRMAR PB200 WEATHER STATION

PAYLOAD IRIDIUM ANTENNA

RAD SHARC PAYLOAD
• Fully autonomous, long-endurance, land-launched

• Advanced sensing for littoral environments

Large Displacement Unmanned Undersea Vehicle (LDUUV)
Interoperability, Command and Control – Missions Systems Lead To Navy’s UAS Program
Command and Control - Added Capability for USAF Global Hawk

- **Reach-back kits** - can now fly Global Hawk anywhere in the world, from Beale AFB
- **Dual Channel Control Ops** - doubled the number of Global Hawks that can be controlled in-theater
Autonomy, Command and Control, Interoperability
Intelligent Behaviors, Communications

- More autonomous
- More survivable
- More reliable
- Extended comms
- Extended mission durations
- Improved dexterity
- Obstacle
  - Climbing Stairs
  - Exploring tunnels
Autonomy, Command and Control, Intelligent Behaviors, Sensing

- Sensor and perception systems
- Custom **radar** tracking algorithms for small-boat maneuverability
- Digital nautical charts imported into world model
- Collision avoidance systems
San Diego Region as a Center of Excellence for Unmanned Systems

- SOCAL/San Diego ideal location
- San Diego established leader in unmanned systems technology
- San Diego and SSCPAC established partnerships
- SSCPAC only warfare center in major Fleet concentration area

FAA intends to designate six areas nationwide as UAS Test Sites. San Diego Region Coalition joining with a coalition from China Lake area to submit a bid for a SOCAL designation. **Source: SDMAC Report**
Takeaways

▼ San Diego and SSCPAC have proven expertise
- Extensive Domain experience (air, land, surface, underwater)
- Appropriate infrastructure in place
- Location, location, location
- Strong Fleet/Warfighter relationships

▼ Future, shared success
- Continued collaboration
- Emphasis on simplicity, rigor
- Development of platform agnostic systems
- Use of modular designs, open architecture
TEAM SPAWAR OSBP WEBSITE
http://www.public.navy.mil/spawar/Pages/SmallBusiness.aspx
Welcome

A Message from our Commander

As the Navy's C4I experts, we listen to our customers and find the right solutions for their C4I challenges. In response, we emphasize providing information solutions versus just information systems. Read more

Browser Support

The SPAWAR E-Commerce Central is best viewed with Internet Explorer. In addition, submission of proposals and any other documents through E-CC works best with use of Internet Explorer. The use of other browsers besides Internet Explorer may result in delayed receipt or unsuccessful submission of documents. If using a non-Internet Explorer browser, you may want to begin transmission of electronic documents 2-3 days in advance to ensure timely submission. (This message is just an endorsement for Internet Explorer by the U.S. Navy and SPAWAR)

Self-Service Password Reset now available

We have implemented a new feature on the e-Commerce Central website to allow users who have lost their password to reset it via an automated function without having to contact the SPAWAR Paperless Helpdesk. This feature is available under the Services section of the left navigation section of the site, and also from the following link: accc-self-service

Contact E-Commerce Central (E-CC) Support

Need assistance? Please contact the SPAWAR Paperless Helpdesk for assistance at 866-527-0644 or email at paperless.spawar@navy.mil. Our help desk hours of operation are:

Mon - Thurs: 7:00am - 4:00pm PST
Fri: 7:00am - 3:00pm PST

NEWS

- SPAWAR Service Contracting Tutorials
- SBA SubNet Website
- SPAWAR/SCOM Office of Small Business Programs Three Year Forecast
- SSC Pacific / BAA Announcement H65001-12-D-0016 - Chemical and Biological Defense...
- Information on Submitting your Electronic Proposal, Market Survey Response and Electronic Unsolicited Proposals...
- Other News...

Recently Issued

| N65236-12-D-0586 | TECHNICAL WORKBENCH STATIONS |
| N65236-12-D-0587 | Advanced Electromagnetics Inc (Broadband Pyramidal Absorber (30MHz-18GHz) |
| N65236-12-D-0588 | HOUSING FABRICATION |
| N65236-12-D-0589 | HOUSING FABRICATION |

Closing Soon

| N65236-12-D-0031 | MATHWORKS SOFTWARE |
| N65236-12-D-0181 | REPAIRS FOR DJC2 SPARES SUPPORT |
| N65236-12-D-0228 | LCD Display Screen |
| N65236-12-D-0238 | VECTER SOFTWARE |

https://e-commerce.sscno.nmci.navy.mil
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News

- SPAWAR Service Contracting Tips
- SPAWAR E-Commerce Central News
- SPAWAR SYSCOM Office of Small Business Programs Three-Year Forecast

Recently Issued

- Solarwinds Patchmanager Renewal
- SCION Consumables
- Terminal Serial switch w/ c/a adapter & Flash card v6.3
- ARSIS ASHORE-CHINCOM MATERIAL PROCUREMENT
- TACMOBILE TADIL (750-12-009)

Closing Soon

- N62326-12-Q-4566 - POWER SUPPLY
- N62326-12-Q-5028 - Pre-Solicitation Synopsis for Study
- N62326-12-Q-5042 - EDGECOM SERVICES
- N62326-12-Q-2320 - Exata Software Renewal
- N62326-12-Q-5651 - L-3 CHASSIS
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