US Special Operations Command

USSOCOM Perspective on Unmanned Aircraft Systems (UAS)

CAPT Gregory Kniff, USN
USSOCOM J33
Joint Reconnaissance Branch (JRB)
11 August 2010
Deploying SOF-Unique ISR Capabilities in support of current global special operation missions

Scan Eagle Launch From NSW MK V Craft
JRB Overview

- Coordinates deployment of all SOCOM ISR assets
- Facilitates deployment of additive ISR supporting SOF by leveraging service programs, capabilities and demonstration efforts
- Maintain situational awareness of all ISR supporting current deployed SOF operations
- Coordinate GCC ISR Request for Forces (RFF) related to SOF
- Coordinate limited ground collection efforts, particularly where complimentary to airborne collection assets
USSOCOM
UAS Platforms
MALET MQ-1/MQ-9 BLOS 18 - 24 hrs
MQ-1C 750 lbs
MQ-9 3,800 lbs

EUAS
70 - 100 nm
6 - 18 hrs
75 - 100 lbs

SLED YMQ-18A
965 nm
12 - 20+ hrs
300 - 1,000 lbs

Global Observer
BLOS
5 - 7 days
380 - 450 lbs

Porloms .5 - 2.7 nm
1 hour

SUAS AECV
5 - 16 nm
1.5 - 3 hours
8 oz

VCUAS
40 nm
3+ hours
15 lbs

POMRAS
.5 - 2.7 nm
1 hour

Red = Unfunded In Current Budget
Purple = JCTD Joint Funded

USSOCOM UAS Portfolio
Small UAS (SUAS)

Rucksack Portable System for Maneuver Units to Provide Increased Situational Awareness with a Modular & Interoperable UAS

- Material Solution to the RPUAS JORD
- CMN-S Transitioned to Joint Program with USA/USMC
- Full Operational Capability in FY08
- Technology Enhancements in Payloads, Image Processing, and Data Links

Key Performance

- 90 Min Endurance
- 5 nm Data Link Range
- Up to 1,000 Ft AGL Surveillance Altitudes
- Up to 10,000 Ft MSL Operating Altitudes
- Single Person Hand Launch
- Modular EO or IR Sensor

<table>
<thead>
<tr>
<th>Attribute</th>
<th>SUAS</th>
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</thead>
<tbody>
<tr>
<td>Wingspan (ft)</td>
<td>4.6</td>
</tr>
<tr>
<td>Length (ft)</td>
<td>3</td>
</tr>
<tr>
<td>Payload (lbs)</td>
<td>0.5</td>
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<tr>
<td>GTOW (lbs)</td>
<td>4</td>
</tr>
<tr>
<td>System Weight (lbs)</td>
<td>25</td>
</tr>
</tbody>
</table>

System: 3 UA, 1 GCS, 1 FRK, 3 EO & 2 IR Payloads
Captures Technology Advances & Additional Operational Requirements Since RPUAS JORD

Enhances the Survivability and Utility of the Current SUAS Materiel Solution

Expands the Operational Envelope:
- High Moisture/Rain & Snow/ High Humidity
- Reduced Acoustic Signature
- Repeated Landings Fresh & Salt Water

Provides SOF Tactical Units a Highly Mobile UAS Capable of Being Deployed from Both Land and Maritime Mobility Platforms

Key Performance
- 135 Min Endurance
- 11 nm Data Link Range
- Up to 1,200 Ft AGL Surveillance Altitude
- Up to 14,000 Ft MSL Operating Altitude
- Single Person Hand Launch
- Gimbaled Dual EO/IR Payload

<table>
<thead>
<tr>
<th>Attribute</th>
<th>AECV</th>
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<tbody>
<tr>
<td>Wingspan (ft)</td>
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<tr>
<td>Length (ft)</td>
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<tr>
<td>Payload (lbs)</td>
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<tr>
<td>GTOW (lbs)</td>
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<tr>
<td>System Weight (lbs)</td>
<td>50</td>
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System: 3 UA, 2 GCS, 1 FRK, 1 RVT, 3 EO/IR Payloads
Expeditory UAS (EUAS)

Provides a Dedicated UAS to Provide Land and Maritime ISR Capabilities to SOF Task Groups and Squadrons

Key Performance

- 6 Hours Endurance with 100 Pound Payload
- 70 nm Data Link Range
- 10,000 Ft MSL Flight Altitudes
- Fully Automatic Take-Off and Landing
- EO/IR Sensor

- 5 Year, IDIQ Contract Awarded To L-3 Communications 11-Sep-09
- Currently Building First System
  - 6 Aircraft, 2 Ground Control Stations, Spares
  - Scheduled Delivery Spring 2010
- Operator Training Following Delivery
- Operational Assessment Prior To First Deployment

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<thead>
<tr>
<th>Attribute</th>
<th>Viking 400</th>
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<tbody>
<tr>
<td>Wing Span (ft)</td>
<td>20.0</td>
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<tr>
<td>Length (ft)</td>
<td>15.0</td>
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<tr>
<td>Payload (lbs)</td>
<td>Up To 130</td>
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<tr>
<td>MGTOW (lbs)</td>
<td>530</td>
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<tr>
<td>Empty Wt (lbs)</td>
<td>336</td>
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<tr>
<td>Engine (Hp)</td>
<td>38</td>
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Medium Altitude Long Endurance Tactical (MALET)

**USAF Capability with SOF Unique Capability Areas for Rapidly Deployable Persistent ISR and Precision Strike**

- Low Collateral Damage Precision Guided Missile
- Assets-Co-located w/Ground Elements
- Control from CONUS
- Transmission of Full-Motion-Video
- Signals Intelligence

<table>
<thead>
<tr>
<th>MQ-1 Predator Attribute</th>
<th>MQ-9 Reaper</th>
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<tbody>
<tr>
<td>Rapid Deployment</td>
<td>Mission</td>
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<tr>
<td>48</td>
<td>Wing Span (ft)</td>
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<tr>
<td>585</td>
<td>Useful Load (lbs)</td>
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<tr>
<td>2,300</td>
<td>MGTOW (lbs)</td>
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<tr>
<td>25,000</td>
<td>Op Altitude (ft)</td>
</tr>
<tr>
<td>135</td>
<td>Max Airspeed (KIAS)</td>
</tr>
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</table>
SOF Long-Endurance Demonstrator (SLED) - YMQ-18A

Developmental VTOL UAS capable of supporting variable payloads/missions with medium altitude and long-endurance

Key Performance

- 18+ Hours Maximum Endurance
- 160+ mph Max Speed
- 20,000 Ft Hover Out of Ground Effect
- Vertical Take-Off and Landing
- Multiple payload capabilities

- FY05 ACTD demonstrated long-endurance and capability to support multiple payloads
- Post-JCTD User Evaluation On-Track
  - Demonstrate integration with FOPEN radar
- Multiple organizations exploring potential CONOPS
  - Counter IED; Cargo/Precision Resupply; ISR
- SOF VTOL UAS CDD in staffing

<table>
<thead>
<tr>
<th>Attribute</th>
<th>YMQ-18A</th>
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<tbody>
<tr>
<td>Rotor Dia. (ft)</td>
<td>36.0</td>
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<tr>
<td>Length (ft)</td>
<td>35.0</td>
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<tr>
<td>Payload (lbs)</td>
<td>Up To 1,000</td>
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<tr>
<td>MGTOW (lbs)</td>
<td>6,500</td>
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<tr>
<td>Empty Wt (lbs)</td>
<td>2,500</td>
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Global Observer
Joint Capability Technology Demonstration

Address Current Capability Gap in Persistent ISR, Communications Relay and PSYOP Broadcast with a High-Altitude, Long-Endurance UAS

Program Objectives
- Flight endurance of 5 days at 65,000 feet
- Flight endurance of 7 days at 55,000 feet
- Payload capacity of 380 lbs
- Flight Testing & Demonstrations in CY10
- Potential Transition for Extended User Eval in FY11

<table>
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<th>Role</th>
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<tr>
<td>Oversight Executive</td>
<td>DUSD AS&amp;C</td>
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<tr>
<td>COCOM Sponsors</td>
<td>USSOCOM and USSTRATCOM</td>
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<tr>
<td>Lead Service</td>
<td>United States Air Force (USAF)</td>
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<td>Technical Manager (TM)</td>
<td>USSOCOM SORDAC-FW</td>
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<tr>
<td>Operational Manager (OM)</td>
<td>Air Force Special Operations Command</td>
</tr>
<tr>
<td>Transition Manager (XM)</td>
<td>USAF ACC</td>
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<tr>
<td>Government Partner</td>
<td>ASAALT, DHS, and DTRA</td>
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<tr>
<td>Industry Partner</td>
<td>AeroVironment Inc. (AV)</td>
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Perspective/Observations
UAS Perspectives

- UAS Demand will continue to expand
  - But have experienced the “ground floor” of DOD demand
    - 3 Caps (MQ-1) 2003 to currently 40+ caps → ~60 caps 2012
    - Growth facilitated by:
      - “Open skies” in AFG/Iraq with DOD controlling combat assets
      - Minimal certification/standardization
      - Surges ordered at senior DOD levels
      - ISR Task Force formed
  - DOD demand continues to grow
    - Services continue building respective programs
    - “Truck” aspect remains important, but DOD continues to refine specific/technical capabilities and payloads
  - Transition to entities outside US DOD: Customs, NOAA, Law Enforcement, Foreign Countries opens additional market share opportunities
UAS Perspectives

- UAS facilitators to continued growth
  - Resolving Airspace Issues: CONUS and OUTCONUS
    - Haiti issue with UAS/Airspace
  - “Sense and Avoid” technology
  - DOD/FAA Regulation
  - Pilot/Crew Training Standardization/Requirements/Currency
  - Safety/Reliability track record
  - Public opinion/trust
  - RPA vice UAS
  - Encryption
  - Bandwidth/Satellite time/Frequency congestion
  - Modular Payloads
UAS Perspectives

Near-Term Factors Affecting UAS Demand/Employment

- Planned Iraq drawdown from now through Dec 2011
- Demand for small UAS likely lessen as large become more prevalent
- Future engagement will focus more on host/partner nation collaboration
- Air Space/POLMIL issues may spur small manned aircraft option
  - Flying manned aircraft poses little/no airspace concern
  - Manned aircraft less conspicuous
  - However minimal growth planned for manned aircraft (Liberty)
    - P-3 operating under HONA/eventual replacement by P-8
    - Army Guardrail RC-12, Guard RC-26, MARRS
Summary

- Experienced accelerated UAS growth in past 9 years primarily to service Iraq/Afg engagement.

- To transition employment of UAS elsewhere outside Iraq/Afg and migrate utilization to other-than-military applications, different set of challenges will need resolution to facilitate further growth.

- Until challenges to “open sky” UAS operation are resolved, may see some tapering of demand tempered with balance of small manned aircraft.
Questions??